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882.331/7-2055

FOREIGN SERVICE DESPATCH

FROM : AMEMBASSY, ANKARA

31
DESP. NO.

TO : THE DEPARTMENT OF STATE, WASHINGTON

July 20, 1955
DATE

REF : "Extension Project" proposed to IBRD, 16 October 1953

71 For Dpt.	ACTION COM-10	DEPT. IN	A/KRP-2 041-6 E-7 ICA-10 NEA-3	
Only	REC'D 8/11	OTHER O	IN-7 CIA-5 TAR-2 ARMY-4 NAVY-2 AIR-4	

SUBJECT: Karabuk Iron and Steel Works Expansion

PASS TO ICA

1. In a presentation dated 16 October 1953, Sumer Bank submitted to the IBRD a proposed project for the Karabuk Iron and Steel Works. It is understood that no formal action was ever taken on this proposal by the IBRD, the office of its special representative in Turkey having been closed some months later because of differences with the Turkish Government, and consideration of pending Turkish applications having thereafter been suspended. The Turkish Government has, however, proceeded with the expansion of the Karabuk Iron and Steel Works, considerably beyond that envisaged, in cost at least, in its proposal to the IBRD. The intent of this despatch is to set forth the present status of the expansion as described to Embassy/ICA representatives during a recent visit to Karabuk and the share Karabuk production represents of total Turkish consumption of the products manufactured at Karabuk.

2. The present facilities of Karabuk are set forth in Enclosure 1. They are substantially as described, in greater detail, in the Turkish presentation to the IBRD of 16 October 1953, and represent a value of TL 72 million before depreciation at the end of 1952.

3. The expansion currently underway is set forth in Enclosure 2. It involves an estimated cost of TL 60 million which includes a foreign exchange component of approximately \$9 million. The International Construction Company Limited of England has been the construction engineer on the project, most of the equipment and construction contracts have already been let, and construction being well underway. This phase of the expansion is scheduled for completion in 1956. Progress is being impeded, however, by the lack of foreign exchange. It was pointed out, for example, that there is no available foreign exchange, for the expansion of the open hearth furnaces, the amount needed for this particular project being \$1 to 1½ million.

4. The ultimate expansion now envisaged for Karabuk is set forth in Enclosure 3. It involves an estimated additional cost of TL 80 million which includes a foreign exchange component of approximately \$12 million. Invitations to bid were mailed to 14 international

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firms about a month ago and replies are expected within the next 30 days. It was said that five different German firms have already sent representatives to study the project and have indicated that they might be able to offer three to five-year credit terms on it.

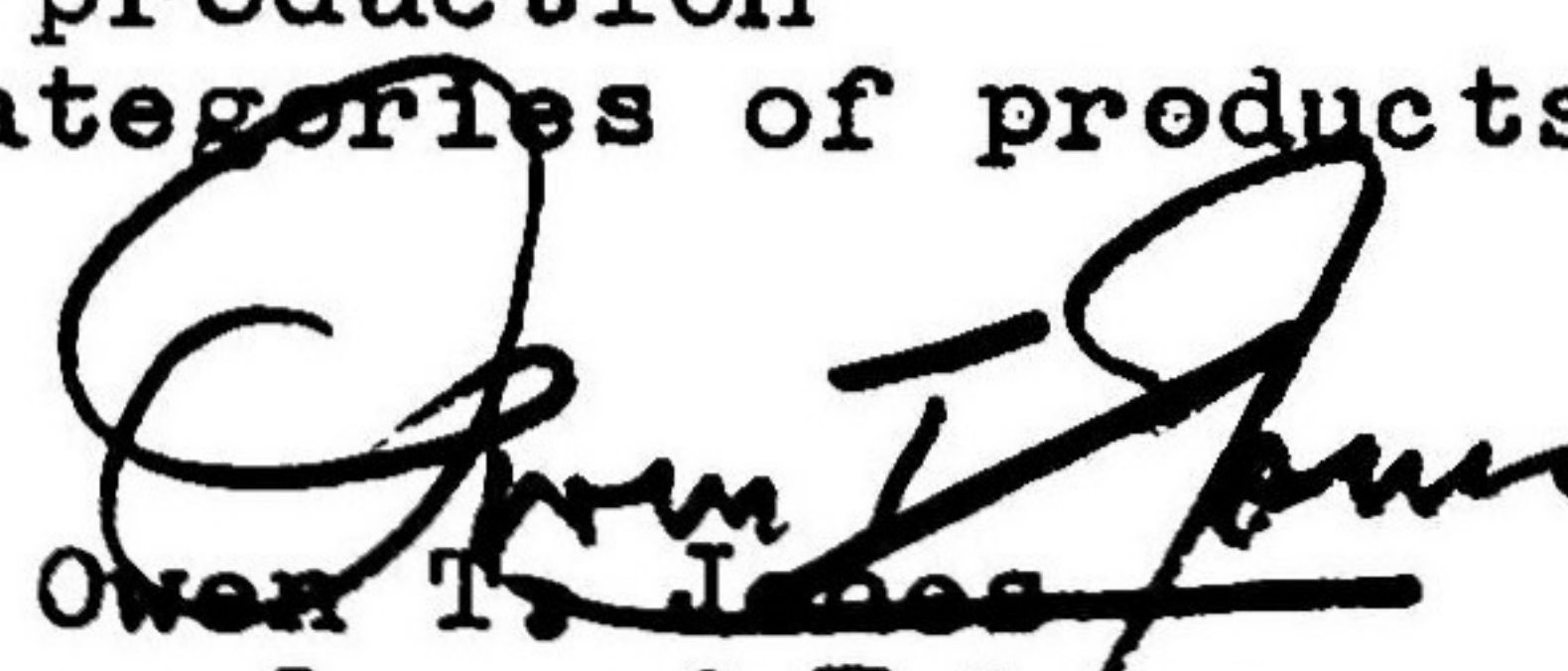
5. It will be seen that the present expansion, as set forth in Enclosure 2, is designed to bring Karabuk open hearth capacity into balance with the coke and blast furnace capacity and to expand the facilities for the manufacture of rolled products of larger shapes. The proposed expansion, as set forth in Enclosure 3, is designed to expand facilities generally, including the manufacture of rolled products of smaller shapes, structural steel, and iron and steel foundry products. The entire program has, however, a great deal of flexibility to it and its ultimate form will be governed by foreign exchange availabilities. For example, if financing is not obtained for the expansion of the open hearth facilities, the present program, as given in Enclosure 2, will be little more than an expansion of the rolling facilities and the balancing of open hearth with coke-blast furnace capacity will have to come at a later stage, as was in fact originally envisaged in the 13 October 1953 proposal to the IBRD.

6. The Karabuk officials indicated they now have no further expansion in view for Karabuk, they being of the opinion that any further iron and steel capacity should be in the form of a new plant. Studies were already underway, they stated, for such a plant of perhaps 500,000 ton capacity, in the Ergeli area on the sea, near the Zonguldak coal mines, and near some iron ore deposits of possible promise now under exploration. It is understood that the Adapaziri and Adana areas are also considered as possibilities. Meanwhile, the Karabuk Iron and Steel Works has been lifted out of the Sumer Bank complex, of which it had been a part since inception, and made a separate state enterprise reporting directly to the Minister of State Enterprises.

7. Production at Karabuk over the period 1950-1954 is given in Enclosure 4 together with the percentage Karabuk production represents of total Turkish consumption of the categories of products manufactured at Karabuk.

✓ Enclosures:

1. Present Facilities of Karabuk
2. Expansion Underway at Karabuk
3. Expansion Envisaged for Karabuk
4. Production at Karabuk 1950-1954


Owen T. Jones
Counselor of Embassy
for Economic Affairs

Contributor: Clifton Day, ICA
Edwin J. Cohn, ICA

Copies have been sent to: Istanbul
Izmir
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PRESENT FACILITIES

	<u>Capacities</u>
1. Coke plant	600,000 m.t.
2. Blast furnace (two)	330,000 m.t.
Screening, crushing & sintering mill	200,000 m.t.
3. Open hearth furnaces (four)	180,000 m.t.
4. Rolling mills	150,000 m.t.
28" blooming mill	
3 stand rail & section mill	
single stand sheet mill	
5. Foundries	
Vertical cast iron pipe	12,000 m.t. (3 shifts)
Spun iron pipe	18,000 m.t. (2 shifts)
Cast iron	5,000 m.t.
Cast steel	800 m.t.
6. Sulphuric acid plant	15,000 m.t.
Superphosphate plant	16,000 m.t.
7. Misc. auxiliary & secondary plants including power, labs, maintenance, etc.	20,000 k.w.

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PRESENT EXPANSION

(To be completed in 1956)

	<u>Capacities</u>
1. Coke plant (unchanged)	600,000 m.t.
2. Two blast furnaces (unchanged)	330,000 m.t.
Screening, crushing and sintering mill (Expanded)	330,000 m.t.
3. Four open hearth furnaces (expanded)	400,000 m.t.
4. Rolling mills	300,000 m.t.
Soaking pit (new)	
28" blooming mill (expanded)	
3 stand rail & section mill (expanded)	
16" and 12" merchant mill (unchanged)	
Single stand sheet mill (unchanged)	
5. Foundries	
Vertical cast iron pipe (unchanged)	12,000 m.t. (3 shifts)
Spun iron pipe "	18,000 m.t. (2 shifts)
Cast iron "	5,000 m.t.
Cast steel "	800 m.t.
6. Sulphuric acid plant (unchanged)	15,000 m.t.
Superphosphate plant "	16,000 m.t.
7. Miscellaneous auxiliary & secondary plants including power, labs, maintenance, etc.	20,000 k.w.

Note: Sumer Bank officials at Ankara state that this phase of the expansion will not be completed until 1957.

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PROPOSED EXPANSION

(To be completed in 1957)

	<u>Capacities</u>
1. Coke plant (Unchanged)	600,000 m.t.
2. Two blast furnaces (unchanged)	330,000 m.t.
Screening, crushing and sintering mill (unchanged)	330,000 m.t.
3. Four open hearth furnaces (unchanged)	400,000 m.t.
4. Rolling mills	300,000 m.t.
Soaking pits (unchanged)	
34" blooming and slabbing mill (new)	
28" 3 stand rail and section mill (unchanged)	
Sheet mill (new, incorporating old mill)	
Continuous road bar and skelp mill (new)	
16 and 12" merchant mill (unchanged - for job lots)	
5. Foundries	
Vertical cast iron pipe (unchanged)	12,000 m.t. (3 shifts)
Spun iron pipe	16,000 m.t. (2 shifts)
Cast iron foundry (new)	N.A.
Cast steel foundry (new)	N. A.
6. Structural steel shop (new)	
7. Sulphuric acid plant (unchanged)	15,000
Superphosphate plant (unchanged)	16,000
8. Misc. auxiliary & secondary plants including power, labs, maintenance, etc.	20,000 k.w.

Note: Power requirements in excess of 20,000 k.w. will be supplied by Catalazi Power Plant. Transmission cables from Catalazi to Karabuk now under construction.

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KARABUK IRON AND STEEL WORKS PRODUCTION 1950-1954

	1950		1951		1952		1953		1954	
	M.T.	%	M.T.	%	M.T.	%	M.T.	%	M.T.	%
Pig-iron/Molten Metal	113,483	100	153,392	100	196,085	100	212,523	100	195,684	100
Steel	90,786	93	135,409	92	153,405	94	162,641	94	168,848	94
Rolled Products	78,466	n.a.	105,448	n.a.	115,875	n.a.	136,158	n.a.	135,186	n.a.
Pipes	8,592	23	8,858	21	7,096	16	6,792	17	7,032	17
Coke	307,853	74	306,099	72	399,867	84	538,271	89	636,000	80
Superphosphate	13,133	100	18,815	84	21,234	62	22,027	81	20,580	52
Sulphuric Acid	13,524	99	18,809	99	20,094	99	23,154	98	19,080	79

Notes:

1. Karabuk itself uses all but approximately 30,000 m.t. of the pig-iron/molten metal, 350,000 m.t. of the coke and 4,000 m.t. of the sulphuric acid it now produces. These residual amounts are made available to the Turkish market for other domestic uses.
2. Percent column indicates percentage Karabuk production represents of total annual consumption, including Karabuk production, other local production and imports. No allowance made for change in stocks Other local steel production consists only of MKEK (Kirakkale) high carbon steel, now running around 8,000 metric tons against annual capacity of 12,000 metric tons; steel imports range between 1 to 3,000 m.t. annually No figures available on other local production rolled products; rolled products imports range between 18-33,000 metric tons annually Pipe percentage takes account only of imports; no figures available on nominal amount other local pipe production....Other sources of coke entirely other local production; no coke imports....Other local superphosphate production consists only of new Iskenderun plant which produced 19,000 tons in the first partial year of production in 1954 and has a rated capacity of 100,000 m.t.; superphosphate imports nominal in 1954 after a high of 12,400 m.t. in 1952....Other sulphuric acid production now consists only of MKEK (Elmadag) which produces approximately 4,000 m.t. annually of which about 10/15% is made available for commercial uses; new Eti Bank sulphuric acid plant at Murgul with annual capacity 50,000 m.t. goes into production this year; sulphuric acid imports were nominal until 1954 when they rose to 5000 m.t.
3. Sources: Karabuk Iron and Steel Works, Karabuk; Sumer Bank, Ankara; MKEK, Ankara Central Statistical Office, Ankara; JAMMAT
4. Contributor: Ismet Egemen, Embassy Economic Analyst

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Mr. Kalijarvi

DEPARTMENT OF STATE

TVK

Memorandum of Conversation

file copy

DATE: March 27, 1956

SUBJECT: Turkey - Expansion of Steel Industry

PARTICIPANTS: Mr. E.S. Harman, E.S. Harman Corporation, 205 West Wacker Drive,
Chicago 6, Illinois

E - Mr. Kalijarvi
GTI - Mrs. Sissman
OFD:ED - Mr. Dunn

COPIES TO: E - Mr. Kalijarvi
GTI - Mrs. Sissman
ED - Mr. Ross
ICA - Miss Heyl
Amembassy Ankara

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Mr. Harman, who is engineering and construction firm has had considerable experience in steel mill engineering and construction abroad, including Chile and Egypt, was invited, at his suggestion, to discuss the Turkish steel industry.

Mr. Harman stated that he was interested in seeing that a sensible approach was made as to whether the Turkish steel industry should be expanded. Based on his visits to many of the Middle Eastern countries, he believed that Turkey had the natural advantages to make it the logical steel producer for the area. He said it would be too costly to build a new plant, but the market in Turkey itself undoubtedly would justify a considerable expansion of the Karabun works. He recommended that an economic analysis be made of the prospects for an expanded steel industry in Turkey to determine (1) natural resources available, (2) market requirements, (3) production costs, and (4) profitability. It would then be possible to determine whether an integrated steel plant could be self-supporting.

If such

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If such were the case, it would then require only IBRD and/or Export-Import Bank credits, together with some U.S. technical assistance, to put the Turkish steel industry on a firm footing.

Mr. Kalijarvi stated that any new demand on Turkey's foreign exchange would require careful consideration since Turkey's present balance of payments position was very critical.

Mrs. Sissman said that Turkey had overextended itself in its rapid economic development, and consequently its financial position had become so serious that the Turkish Government had found it necessary to support an economic stabilization program which presumably would put a brake on the undertaking of new heavy industry projects such as a new steel mill or a very extensive expansion of the old plant. She said she recently had been through the Karabük plant and had been told that one of the main contributors to the high cost of Turkish steel was the high cost of transporting iron ore by rail from Eastern Turkey to Karabük, as well as the difficulties of shipping steel products from Karabük to Turkish markets. Mr. Harman replied that, when he had been in Turkey in 1948, the cost of producing pig iron at Karabük had been roughly comparable to the United States cost, but the production costs for Turkish steel mill products had been six to nine times the United States cost. He attributed the high Turkish costs of mill products to too low a mill output. He believed that Karabuk could be expanded sufficiently to lower its mill costs, and such a program would be considerably less costly than construction of a new plant. As for foreign exchange costs, he said these might be more than offset by erecting a ferro-alloys plant at Karabük to produce ferro-chrome and ferro-manganese for export. Mr. Dunn pointed out that the Karabük plant was now being expanded to bring the open hearth and rolling capacities in balance with the coke and blast

furnace

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furnace capacities.

Mr. Kalijarvi asked whether Mr. Harman was a consultant of the Turkish Government. Mr. Harman said no; he was only a steel plant engineer.

In reply to Mr. Kalijarvi's inquiry as to what might be done to assist him, Mr. Harman said that he had been informed that the Turks were interested in a new steel plant and that they hoped to bring the matter up in their discussions with the United States. Mr. Harman said he believed a study of the economic merits of an expanded Turkish steel industry ought to be made and, if such a study were considered desirable, his firm would be available to assist the United States and Turkish Governments.

Mr. Kalijarvi thanked Mr. Harman for his interest and stated that a new steel plant would have to be considered in the light of Turkey's serious economic problems which were now under study as evidenced by Mr. Randall's mission. He said the Department would keep in touch with Mr. Harman regarding any new developments affecting the Turkish steel industry.


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FOREIGN SERVICE DESPATCH

FROM : ANEMBASSY, ANKARA

646
DESP. NO.

TO : THE DEPARTMENT OF STATE, WASHINGTON.

April 12, 1957
DATE

REF : CERP B 36, May 5, 1954

27 For Dept. Use Only	ACTION	DEPT.
	REC'D	OTHER
	Com-17 4-22	REP-2 OLI-8 E-3 NEA-3 ENR-3 ICA-10 IN-7 CIA-10 TAR-2 ARMY-4 NAVY-2 AIR-1 TAR-2 LAB-5

SUBJECT: Iron and Steel (Supplement to Embassy Despatch No. 620, April 8, 1957)

Imports

Import of the major iron and steel products into Turkey in 1956 amounted to 165,416 metric tons valued at TL 104,046,000. The import of pipe was an important item in 1956 and probably will be more important in 1957 because of its use in oil field exploration work. In 1956 work was started on two wells. In 1957 it is expected that at least 5 wells will begin exploration work of the subsurface geological features. It has been estimated that each well will require an average of 8,000 feet of drill pipe. (Imports are listed in attachment I).

Rolling Mills

As of April 1, 1957 there were 23 rolling mills in operation in Turkey. Their installed capacity was estimated at 360,100 metric tons. By far the greater part of the installed capacity was in the hands of the government sector--Karabuk Iron and Steel Works having 300,000 tons. The private sector was represented by 21 firms in 5 cities.

A sizable expansion program is planned but the extent of actual construction in the private sector is not known. On April 9, 1957 the Karabuk Iron and Steel Works signed a contract with the German firm of Demag to install equipment that would increase the rolling mill capacity by 230,000 tons divided into what was called rolling mill of 70,000 tons, various size pipes 95,000 tons, bars 20,000 tons and other materials 45,000 tons. The cost was estimated to be TL 65 million of which TL 25 million will be in foreign exchange. The contract with Demag is for DM 36 million to be paid as follows: 5% in one month after contract becomes valid, i.e., after approved by Ministry of Finance; 15% in 4 months; 20% in 8 months; 15% in 12 months; 10% in 16 months; 15% in 18 months; 15% in 22 months; and 5% in 36 months. Payments are to be made after the sale of chrome and scrap to England on the same dates. The construction period was estimated between 18 and 24 months. Plans for the expansion of M.K.E.K. are under consideration but no contract for construction has been signed. (Rolling mill companies are listed in enclosure II).

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[Signature]
C. Robert Moore
Counselor of Embassy
for Economic Affairs

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Iron and Steel, Imports by Principal Products
1956

	Quantity (Metric Tons)	Value (TL 1,000)
Iron and steel plates, rods, bars, sections, angles, strips, hoops, sheets and plates, and wires	86,042	46,398
Rails	10,889	4,665
Railroad materials	2,601	1,906
Iron and steel pipe	43,789	27,022
Prefabricated building material	11,920	12,450
Tanks and drums	7,824	8,374
Cables	<u>2,351</u>	<u>3,230</u>
Total	<u>165,416</u>	<u>104,645</u>

Source: Central Statistical Office, Ankara.

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Enclosure II
Rolling Mill Companies, Turkey
April 1, 1957

	<u>Actual Cap.</u> <u>Tons</u>	<u>Enlargement</u> <u>Tons</u>
<u>Government Sector</u>		
Karabük Iron and Steel Entr.	300,000	350,000
Kirikkale		
M.K.E.K.	6,000	15,000
<u>Private Sector</u>		
<u>Karabuk:</u>	<u>7,400</u>	
Mehmet Vergili	450	
Isiklar Ortakigi	500	
Azmi Çatal	500	
Ismail Guven	900	
Ibrahim Sezen	900	
Ali Dedeoglu	900	
Hulusi Demetoglu	900	
Osman Yücel	450	
Tipuz Koll. Şti.	500	
Emin Şahin ve Mehmet Işık	500	
Sumer Güven	450	
Mustafa Yazici	450	
<u>Istanbul:</u>	<u>42,800</u>	
Telay	15,000	21,000
Demas	12,000	14,000
Mekanik Imalat ve Tic. Şti.	1,800	3,000
Ozcan Özgür ve Ortaklari	2,500	
Tahir Mumcu ve Ortaklari	1,500	3,000
Alanya Demiriş	10,000	15,000
<u>Ankara:</u>	<u>900</u>	
Şeref Sürmen ve Süleyman Gürol	900	
<u>Kayseri:</u> Volkan Demir Hadde	1,500	
<u>Konya:</u>	1,500	
<u>Izmir</u>		<u>15,000</u>
	<u>360,100</u>	<u>436,000</u>

Source: Industry Division, Union of Chambers of Commerce, Industry

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FROM : AMEMBASSY, ANKARA

620
DESP. NO.

TO : THE DEPARTMENT OF STATE, WASHINGTON.

April 8, 1957
DATE

REF : B-36

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	REC'D	OTHER
	4/10	Rep-2, DL1-8, E-3, ICA-10, TAR-2, NEA-4 IN-7, CIA-10, ARMY-4, NAVY-2, AIR-1 LAB-4

SUBJECT: Karabuk Iron and Steel Works, Current Status

Historical Background

Before World War I Turkey had a small iron and steel factory in the Istanbul area. Following that war this mill was dismantled and shipped out of the country. When Ataturk came to power one of the many promises he made included a steel mill. A steel mill was a matter of great importance to the national pride and was believed essential for sound economic development considering Turkey's previous isolation from the rest of the world. This situation was particularly true during her fight for independence in the early 1920s when some of the arms and ammunition used were made in Turkey.

After a study was made of possible sites, Karabuk was selected as the location for the iron and steel works. At the time there were no known deposits of iron ore in the country. (In 1940 iron ore was found at Divrigi). Thus it seemed logical to locate the mill fairly near the known coal deposits. The known coal deposits were at Zonguldak on the Black Sea Coast. During World War I the Russians shelled the coal installations at Zonguldak so it was planned to build the mill beyond the reach of naval guns. A mill of the size planned required more water than the City of Istanbul. Thus a third consideration was a river with a sizable dependable supply of water. Considering these three factors and the fact that the iron ore would have to be imported, it was decided to locate the mill at Karabuk.

Actual construction of the works was begun in 1937 and some sections began production in 1939. Early production was with imported iron ore. The mill was built under contract with the British firm of H. A. Brassert who also arranged for a ten-year credit to cover the foreign exchange costs.

In preparation for mill operations a number of young high school graduates were sent to Germany and the United States to study the technical aspects of iron and steel production. In late 1956 there were over 15 men working in the mill who were graduates of such foreign technical schools. The four department heads are Turkish men who have graduated

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from foreign technical colleges. Most of the other foreign graduates are superintendents or work in one of the many laboratories of the mill. Today there are still a few foreign advisors working at the mill and some may continue for several years.

Organization

On June 18, 1955, the Karabuk Iron and Steel works became a state corporation under Law 3460 of June 17, 1938 and Law 6559 of May 13, 1955. No stock has been issued but the entire ownership is held by the Treasury, Ministry of Finance for the Government of Turkey. The management is directly under the Board of Directors. The Board is composed of five men; four members are appointed by the Minister of State Enterprises and one by the Minister of Finance. The appointments are approved by the Council of Ministers.

All of the present directors are technical men. The managing director is an engineer, the MKEK representative is also an engineer, the Zonguldak representative is a mining engineer, one is a specialist in financial matters and was formerly a Ministry of Finance official, and the fifth member specializes in labor problems and employee relations. All of the directors take an active interest in their fields of specialization that involve the Works. All of these men except the managing director were selected from fields outside the mill organization.

Three of the four department heads were selected from the ranks of the Works employees. The fourth was from Summer Bank. Two were German trained, one English and one American. The four departments are (1) technical, research and laboratory; (2) operation of works; (3) sales and commerce; and (4) labor relations. The American trained departmental head is in charge of the technical, research and laboratory work.

Equipment and Capacity

The general types of equipment and their capacity on January 1, 1957 were as follows according to the managing director:

1. Coke over and by-products plant has a total capacity of 600,000 tons of coke yearly.
2. Two blast furnaces with a capacity of 150,000 tons yearly, each.
3. Two crushing and sintering plants with a total yearly capacity of 180,000 tons.

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4. Rolling mills

- a. 28" blooming and section mills of 180,000 ingot tons per year.
- b. 16"-12" merchant mill of 100,000 tons yearly.
- c. Sheet mill of 20,000 tons yearly.

5. Four open hearth steel furnaces with yearly capacity of 180,000 tons.

6. Pipe foundries

- a. Sand cast of 10,000 tons yearly.
- b. Centrifugally cast 15,000 tons yearly.

7. Sulphuric acid plant of 18,000 tons and a superphosphate plant of 22,000 tons yearly.

8. Power plant operating from gas 20,000 k.w.

9. Work shops where some steel manufacturing could be done. For example, steel frames for buses and frames and girders for bridges were being made.

10. Auxiliary departments for internal use.

- a. Cast iron foundry of 5,000 tons.
- b. Electric furnace for steel producing about 800 tons yearly.
- c. Laboratories.

Of the iron ore supplied the mill about 70 per cent must be sintered while the remainder may go directly to the blast furnaces. Most of the ore from the Divrigi Mines contains between 1.5 and 2 per cent sulphur which is not recovered in the sintering process. Because the present sintering plant has a capacity of 180,000 tons the blast furnaces do not operate at capacity. For this reason first consideration was given to its expansion. Contracts have been let and work started to enlarge the plant. Currently the managing director estimates the work will be completed by September 1958 and at that time the sintering plant will have a capacity of 650,000 tons. Most of the known ore deposits contain some sulphur so that it is expected that a sintering plant will be needed as long as the works exists.

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The four open hearth furnaces have a capacity of 75 tons per batch and an estimated total capacity of 180,000 tons per year. This rate of operation indicates a 20 per cent shutdown. The production of the furnaces in 1955 and 1956 was above the reported capacity, 188,000 tons in 1955 and 192,500 tons in 1956. Above capacity production can be achieved by reducing shutdown time, using higher grade ore, adjusting air intake and several other ways. A new 150 ton per batch furnace is being installed. The foundation is completed and most of the metal work is nearing completion. The management hopes it will be in operation by late summer of 1957. When this furnace is in operation it is planned to enlarge three of the four 75 ton furnaces to a capacity of 150 tons per batch. After this expansion work is completed and if foreign exchange can be found it is planned to build another 150 tons furnace. If the entire expansion program is completed furnace production will amount to 500,000 to 550,000 tons per year.

The expansion of the blooming plant is almost completed. The building and foundations are finished and much of the machinery is installed. It is estimated that the 36" blooming and related equipment will be ready for operation by June or July 1957 and the modifications of the 28" blooming mill by not later than September 1957.

Production

The Karabuk Iron and Steel Works in 1956 produced more pig iron and steel than the year before and 1956 production was reported to have been the best on record. Pig iron production did not reach the capacity of the blast furnaces, partly because the expansion of the sintering plant was not completed and because of the shortage of high grade iron ore.

Production Karabuk Iron and Steel Works 1955 and 1956

	<u>1955</u>	<u>1956</u>
	<u>Metric Tons</u>	
Pig iron	200,820	216,481.6
Ingots and steel for casting	188,028	192,511.4
Rails and sleepers	6,780	4,780
Sheet iron	22,584	25,148.7
Pipes	16,476	14,681.9
Sulphuric acid	18,252	16,670.2
Ammonium sulphate	4,272	521.8
Pitch	15,264	15,928.4

Source: Central Statistical Office, Ankara.

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Labor

The Works employs about 5,000 people, 450 are staff and the others skilled laborers and workers. The unskilled labor generally comes from the nearby countryside and tends to be transit. Many of the workers work a few months and return to their villages. The other employees may come from anyplace in Turkey. The semi-skilled workers generally come from technical schools. They are selected by a written examination and then given on-the-job training. At one time the Works operated its own training school but have found on-the-job training more satisfactory. Those men who show special ability are given further training with the expectation that they will be used as foremen and supervisors.

Turkish workers have demonstrated that they have good aptitude for work in an iron and steel factory. Studies made by the management indicate that the production per man is equal to that of many European mills and in some departments is equal to the best European mills with similar equipment.

The mill management is safety conscious. In 1954 a study was made of the accident rate and it was found that there were three times more accidents in the Karabuk mill than the United States average for iron and steel mills. Since that time safety education has been a regular part of training workers. All workers are taught the necessary safety measures that go with their particular job and elementary first aid.

There are safety posters throughout the entire establishment. Special training is given to foremen and supervisors in methods to meet most types of emergencies. At one emergency station there are gas masks. At least three modern fire engines are stationed at strategic spots around the grounds. An emergency medical center is located on the grounds and has two doctors in attendance. There is one ambulance available at all times. In the City of Karabuk there is a general hospital operated by the mill management.

Wages vary with the type of work and the amount of responsibility. The average skilled labor receives TL 11 per day and is furnished low cost housing, free electricity, subsidized amusements, a club with club house, low-cost medical services for their entire families, receive pay for seven days although only working six, and one to two week's vacation a year depending upon length of service. Including all benefits the management estimated that this level worker receives an average of the equivalent of TL 22 a day for six days work a week.

Housing for skilled labor has from one to four bedrooms, living room, hall in the larger houses, kitchen and storeroom, and one or

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one and a half baths depending upon the number of bedrooms. Running water and sewage are furnished free. Rent for the housing is equal to maintenance costs. Most skilled workers have electric stoves, refrigerators and washing machines.

The mill management has been responsible for the building of three grade schools, one junior and one senior highschools. The schools are now under the supervision of the municipality.

Sales

The mill maintains nine sales outlets all of which carry some stock but only Karabuk and Istanbul have a complete supply of most of the products. The sales outlets are: Karabuk, Istanbul, Ankara, Eskisehir, Adana, Sivas, Afyon, Izmir, Samsun and Bursa. The sales manager said that the sales price was based upon the cost of production. The price of those items produced in large volume is determined by the Board of Directors and expensive speciality items must be approved by the Council of Ministers. A significant increase in price must also be approved by the Council of Ministers, but reduction may be made by the general management. Prices on small items are generally set by the general management. The mill management claimed that their sales prices was in line with those of similar imported products and considering the import duty were lower in many cases. A few years ago profits were paid to Summer Bank and other stockholders but for the past three or more years the profits have all been going into the expansion program.

Progress on Planned Expansion

Chart I shows the current capacity of the major operations of the Karabuk Iron and Steel Works and the capacity when construction on present plans are completed. Some of this work will not be completed until 1959 provided foreign exchange can be found. The management claims that foreign exchange has been found for most of the expansion program.

Chart I was prepared by the Works manager to indicate those parts he had arranged to be completed on schedule. The expansion of the iron ore operations requires importing heavy trucks and other mining equipment. Although he did not have the foreign exchange arranged for the purchase of this equipment he thought he could obtain it without much difficulty but he did not say from where. The increase in size of the sintering plant is to be paid for by the export of pig iron which he claimed the mill was now producing in surplus. Exports probably would be made at the expense of the local market because Turkey could use all of the pig the mill is capable of producing.

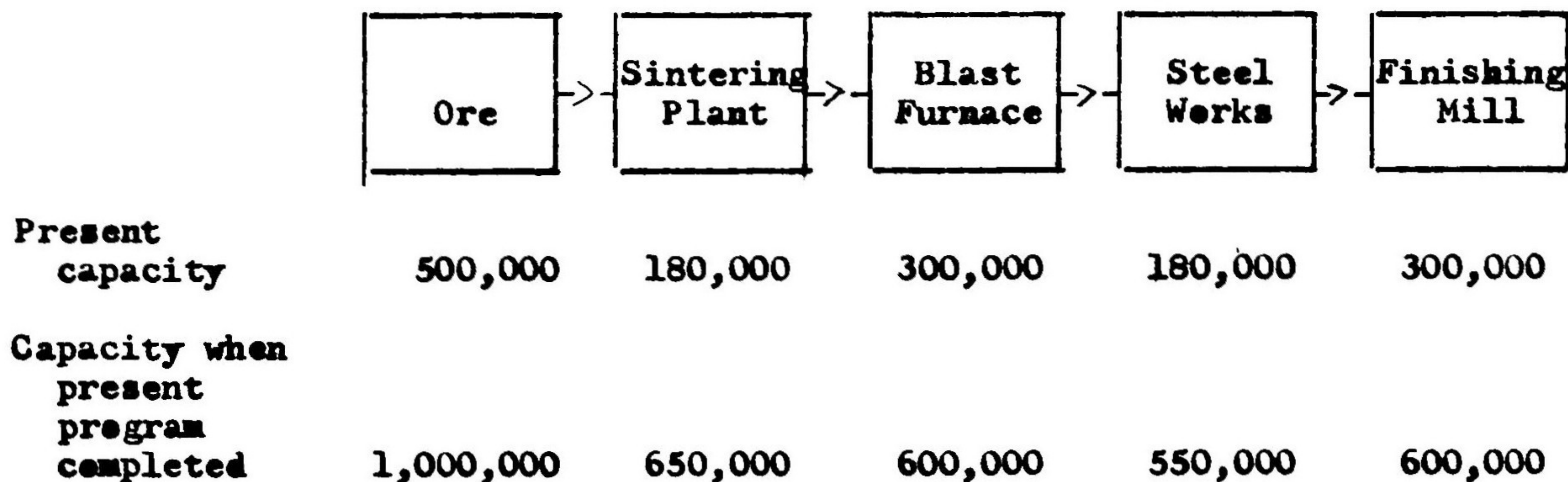
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Although plans call for doubling the capacity of the blast furnaces no foreign exchange has been found for this purpose and the manager said he was planning to approach ICA for assistance in obtaining the necessary funds. The plans call for building another blast furnace with a 300,000 ton capacity.

The expansion of the steel works and the finishing mill is now well under way. The work is being done under contract with Krupp who is receiving foreign exchange in the form of chrome ore, some pig iron and iron ore. Although he did not indicate who was receiving the pig iron, the manager said that as of March 15, 1957 the Works had exported 25,000 tons of pig iron and would export another 20,000 tons by June 30, 1957.

CHART I



The expansion of Karabuk Iron and Steel Works presents a transportation problem. In 1956 a total of 1.9 million tons of products were moved into and out of the mill. Of this amount 1,343,295 tons were raw materials going to the mill and 558,298 tons of finished products leaving the mill. Colonel Harry Owens, ICA Transportation Adviser, estimated the volume would be 2,460,000 tons moving both ways in 1957 and 3,690,000 tons in 1958-59. At the present time there is a shortage of ore and coal cars and some of these products must be moved in box cars. With the expansion of the Works considerably more rolling stock will be needed as well as physical and operational improvements in the lines. (For more complete information on this problem see Colonel Owens' comments in Attachment 1).

C. Robert Moore
C. Robert Moore *NW8*
Counselor of Embassy
for Economic Affairs

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C O P Y

February 11, 1957

TO: General William E. Riley
USOM Director

J. H. Berryhill
Chief, Office of Industry

FROM: Harry E. Owens
Transportation Advisor, USOM/T

SUBJ: Trip Report, Turkish State Railway Facilities
Zonguldak, and visit to Karabuk Steel Mill.

1. Harry E. Owens, Transportation Advisor, USOM with Ulvi Ayberk, Secretary to the Director General, Turkish State Railways, accomplished travel as indicated above for the purpose of:

a. To discuss certain problems presented by representatives of the Paul Weir Project, namely, (1) Utilize scales of washery in lieu of Railway scales, (2) Weight limitation and overload tolerances on coal cars.

b. Visit to the Karabuk Steel Mill to ascertain magnitude of rail transportation requirements necessitated by expansion of rolling mill and pig iron production in 1958-59.

2. Personnel interviewed:

ZONGULDAK

Asaf Yenisey - EKI Deputy Director General
Melih Aksey - EKI Permanent way and bridges engineer
Necdet Ozansey - EKI Transportation Director
(Portmaster)
Abdulkadir Eryilmaz - EKI Section Engineer - (Uzunahmet)
Cemal Buren - Chief engineer of mines - (Kozlu)
Paul Weir Company
John E. Good, Vice President
A. W. Gasper, Project Engineer

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KARABUK STEEL MILL

Turgut Akyol - Iron and steel mills, president of
exploitation
Bahri Ersoz - Iron and steel mills, technical group president
Nezihi Bilen - Iron and Steel Mills, Hammer section engineer,
shapes
Muharrem Somer - Iron and Steel Mills, Hammer section engineer
of 16 mm shapes
Mumtaz Akman - Steel mill chief
Ali Ulubay - Iron and steel mills, high oven director

3. Zonguldak:

Accompanied by representatives of both the Paul Weir Company and Washery, and Mr. Ayberk, an inspection of the weighing facilities was made at both the Washery and Railway.

Presently, the cars loaded at the Washery, are not located over scales, and the capacity or load-limit of the car is left to the judgment of the loading chute attendant. After loading, the cars are moved to the Railway scales, approximately 1/2 mile for weighing. The tolerance established by the Railways is now 5%. In many cases, of course, the cars are over or underloaded, necessitating throwing on or off coal by manual labor. This is not only time consuming, lengthening the turn-around time of cars, but also costly. It was agreed by all present that this procedure should be eliminated. Suggestions for temporary solution of this problem were discussed such as greater over-load tolerances, and load-limit markings on the interior of cars. However, it was felt by all that a permanent solution could be accomplished by the installation of loading chutes to permit loading of cars directly over the washery scales. The Paul Weir people stated that this matter was now being contemplated. Mr. Ayberk stated that upon return to Ankara, the problems would be presented to the Railway staff and that within a few days the railway engineers would visit Zonguldak to pass on the suggestions given and determine what relief can be given.

4. KARABUK Steel Mill:

A tour was made through the plant and a conference held with the staff. Mr. Akyol, President of Exploitation stated that the expansion program of the rolling mill and pig iron production facilities would be completed during 1957 and production started in 1958. For 1958-59, production of rolled steel will be doubled, and pig iron production tripled.

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The railway transportation requirements of the steel mill for 1956, 1957 and 1958-59 follows:

KARABUK STEEL MILL

RAILWAY TRANSPORTATION REQUIREMENTS

(1956)

I. Raw Materials and finished products:

(a) Raw Materials (Incoming)	<u>Tons</u>	<u>Point of origin</u>
Coal	802.132	Zonguldak-Catalagze
Iron ore	333.758	Divrigi
Iron ore	25.026	Miscellaneous
Scrap iron	1.901	"
Alloy	11.662	Filyos
Brick sand etc.	17,302	"
Lime stone	13,744	Balikesir
Lime stone	97.332	Eskipazar
Sulphur ore	13,330	Keciborlu
Manganese ore	5.550	Miscellaneous
Cement	6.875	"
Other	<u>14.683</u>	"
TOTAL	1.343.295	

(b) Finished Products (Outgoing)

Coke	297.168
Pipe	53.705
Rolled steel	153.334
Fertilizer	18.773
Slag	0
By-Products	31.508
Sulphuric Acid	<u>3.810</u>
TOTAL	558.298
GRAND TOTAL	<u><u>1.901.593</u></u>

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(1957)

II. <u>Raw Materials</u> (Incoming)	<u>Tons</u>	<u>Point of origin</u>
Coal	900.000	Zonguldak-Catalagze
Iron ore	550.000	Divrigi
Scrap iron	20.000	
Brick and sand	50.000	
Lime stone	20.000	
" "	140.000	
Manganese ore and etc	<u>20.000</u>	
TOTAL	1.700.000	
(b) Finished Products (Outgoing)		
Coke	250.000	
Pipe and pig iron	60.000	
Rolled steel	300.000	
Fertilizer	25.000	
Slag	100.000	
By-Products	<u>25.000</u>	
TOTAL	760.000	
GRAND TOTAL	2.460.000	

(1958-1959)

III. (a) Raw Materials (Incoming)

Coal	1.200.000
Iron ore	1.100.000
Scrap iron	50.000
Brick sand	90.000
Lime stone	40.000
Lime stone	300.000
Pirit manganese ore, etc.	<u>30.000</u>
TOTAL	2.810.000

(b) Finished Products (Outgoing)

Pipe and pig iron	80.000	Karabuk
Rolled steel	450.000	"
Fertilizer	25.000	"
Slag	150.000	"
By-Products	35.000	"
Coke	<u>140.000</u>	"
TOTAL	880.000	

1958-1959 YEARLY 3,690.000

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5. Railway Transportation Problems

a. Line Capacity: It will be noted that the railway transportation requirements for Karabuk Steel Mill for 1958-59 (yearly) will be 3,690,000 net tons. In addition to this requirement there are other ever-mounting work loads, such as, approximately 500,000 tons of chrome ore to be delivered to the ports, sugar beets into the factories and sugar out, raw products into the cement factories and cement out, and, of course, the thousands of tons of farm products and other commodities. It is estimated that the maximum yearly capacity (freight) of the railway line, (providing rolling stock was adequate) between given points, in this connection for example, between Karabuk and Divrik, (iron ore area) is approximately 4,500,000 net tons, calculated on 12 x 600 ton trains in each direction. Allowance is made for operation of 4 passenger trains in each direction, (total 32 trains daily in both directions).

b. Central Traffic Control (CTC) It is felt that the planning and timing for completion of CTC for the lines from Haydarpasa to Zonguldak was well conceived, and reflects merit upon the Railway Management. It is estimated that CTC on these lines will be in operation 1958-59. CTC will be a great help in handling traffic over these single lines, and will give the line approximately 75% capacity of double track.

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c. Rolling Stock

1. The population of rolling stock follows:

Box cars	8,796
Gondola cars	6,277
Flat cars	252
Coal and ore cars	355
Tank cars (R Round)	199
Tank cars (Military)	245
Tank cars (Private)	474

2. Ore Cars - Presently there is a shortage of all types of cars, and to handle the volume of business forecast for 1958-59 and future years this shortage becomes critical. For instance, the yearly requirements for rail transportation of iron ore alone, from Divrik area to Karabuk 1958-59 amounts to 1,100,000 tons. If the combined population of coal and ore cars were used for transportation of ore, the capacity, calculated on 7-day turn around time and average of 20 tons per car would be 340,000 tons, far short of requirements.

3. Coal Cars - There exists, for the present workload a critical shortage of coal cars, often it is necessary to transport coal in box cars. This is time consuming and produces a further shortage of covered cars. For future procurement it is suggested that the Railway management consider 40-ton, 4-axle coal cars, in lieu of 20-ton, 2-axle cars.

4. This report merely points out the critical needs of coal and ore cars. The needs for other type cars are almost as critical. It must be realized that the railway network of Turkey is the backbone of all transportation, and the limiting production factor for the steel mills, sugar factories, cement factories and other industry is dependent upon transportation, primarily rail transportation.

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FOREIGN SERVICE DESPATCH

FROM : AMERICAN LEGATION, ANKARA

750

DESP. NO.

May 29, 1957

DATE

TO : THE DEPARTMENT OF STATE, WASHINGTON.

REF : Section D, Item VII, B, 3

67 For Dept. Use Only	ACTION	DEPT
	REC'D	IN F OTHER
	NEA-4 6/3	IN 7 CIA-12, LAB 4, Army-4, NAVY-3 AIR-3 THAR-2, TR-3, VAB-3 CUM-10

SUBJECT: Krupp Visit to Turkey

The visit of Alfred Krupp von Bohlen, German industrialist, has attracted wide attention and press speculation. The press reported that Mr. Krupp planned to build the third blast furnace at Karabuk Iron and Steel Works and invest a total of one billion DM in Turkey. Investments mentioned in the press included an \$80 million equipment contract with the Turkish railways; an expansion of the Kirikkale munitions plant; the possible construction of an industrial center built around another steel mill at either Iskenderun or Adrenit; the construction of a new SS Izmir; railway ferries for the Lake Van extension of the railway to Iran; and a bridge across the Bosphorus. The first three projects, at least, have been under consideration for some time.

The agreement to build the third blast furnace was confirmed by the management of the Karabuk Iron and Steel Works although it is not clear whether the agreement has actually been signed (Emb Despatch 620 of April 8, 1957). The agreement provides for the construction of a 300,000 ton per year furnace with Krupp supplying the required foreign exchange amounting to an estimated DM 17 million. The Works will furnish the lira cost. The works will make a ten percent down payment and the remainder of the credit will be paid for by pig iron produced from "this particular furnace."

The railway agreement is still being prepared, according to Railway Department officials. The proposed agreement provides for the delivery of \$20 million a year for four years of passenger and cargo cars, rails and other road equipment, diesel electric switch engines, wrecking equipment, rolling mill products (apparently for the production of cargo cars in Turkey), and certain types of port equipment. Repayment is to be over a six-year period and to be composed of tobacco, raisins, figs, nuts and other products.

An economic officer of the German Embassy stated that the principal reason for Mr. Krupp's visit to Turkey was the enlargement of Turkey's munitions factory at Kirikkale in order to meet the German munitions agreement (see Emb Despatch 741 of May 24, 1957). He said that of the DM 255 million deposited as the down payment of the purchase of munitions, DM 85 million was earmarked for payment of arrears and the remainder for enlarging the factory and perhaps for raw materials for the manufacture of the munitions. Krupp, in cooperation with other German engineering firms, will have the responsibility

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HWSpielman/crm
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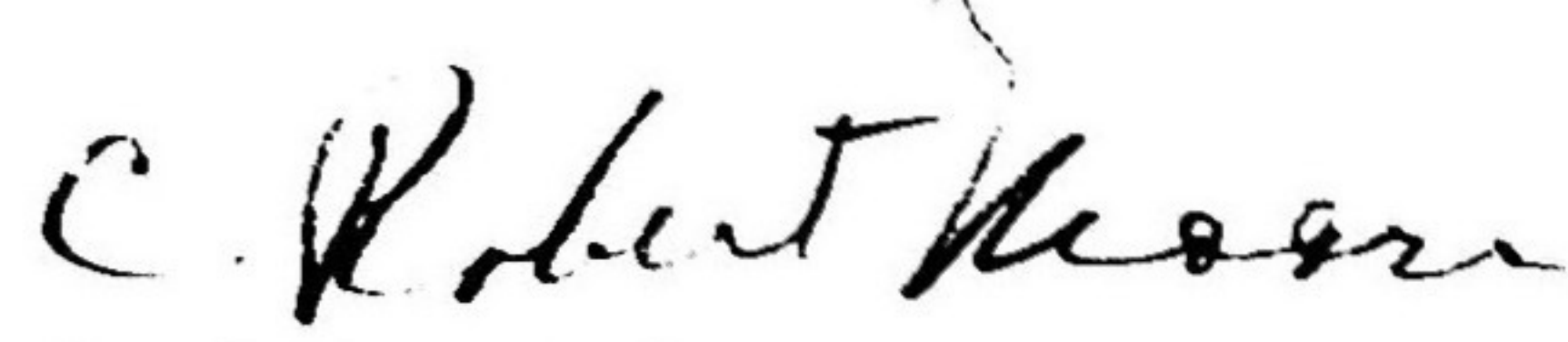
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for the expansion of Turkey's munitions industry for the purpose of fulfilling the German agreement. The economic officer also said that Germany would make no further deposit on the munitions agreement until munitions in the amount of DM 255 million had been delivered. Such delivery has been estimated to take about 18 months.

No information is yet available as to whether Krupp plans to assist in the financing of the other projects mentioned in paragraph 1 above. He is expected to hold a press conference in Istanbul on May 28 at which time an announcement of his intentions may be forthcoming.

Krupp's reception in Turkey has virtually equalled that accorded a Chief of State. Receptions and dinners in his honor have been given by Prime Minister Menderes and other Cabinet Ministers. In his trip throughout the country in his private plane he has frequently been accompanied by Finance Minister Polatkan and by Ethem Menderes, Acting Minister of Foreign Affairs and Minister of Public Works. His activities have received front page play in the daily press. It is evident that great expectations are being built up in Turkey over the results of the visit. It seems likely, however, that these expectations may be somewhat disappointed.


C. Robert Moore
Counselor of Embassy
for Economic Affairs

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FOREIGN SERVICE DESPATCH

FROM : AMEMBASSY, ANKARA

118
DESP. NO.

TO : THE DEPARTMENT OF STATE, WASHINGTON.

August 28, 1957
DATE

REF : CERP, Item D-VII-B-3, Embdes 31, July 20, 1955 and Embdes 620,
April 8, 1957

13 For Dept. Use Only	ACTION *	DEPT.
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	COM. 17	REP 2 041-8 NEA-3 E-3 ICA-10
	4-10	IN-7 TAR-2 CIA-10 ARMY-4 NAVY-2 AIR-1

SUBJECT: Transmitting Report on Karabuk Iron and Steel Works

The Embassy transmits a "Summary Report on Present Facilities, Capacities and Operations; and, Future Expansion at Karabuk Iron and Steel Works". This report has been prepared by C. W. Ryan, Mining Advisor, USOM/Turkey and has been transmitted to ICA/Washington under cover of TOICA A-260 of August 23, 1957.

The portion of the report covering current production is particularly interesting and as it is based on 1956 data it may be considered that it also covers the CERP requirement for iron and steel as set forth under Section C-6, for that year, and complements data contained in Embdes 620, April 8, 1957.

In connection with the consumption of raw materials it is interesting to compare some figures for the Karabuk operations with averages for the U. S. industry for the year 1953, the last one for which data are available, as follows:

	<u>Karabuk 1956</u>	<u>U.S., 1953*</u>
Coke, per metric ton pig iron produced, Kgs.	968	908
Iron materials, per metric ton pig iron produced, M. tons	1.6	1.9
Iron materials, per metric ton steel produced, M. tons	1.22	1.35

* Calculated from data in 1953 Minerals Yearbook, U. S. Bureau of Mines.

While operating conditions and nature of raw materials are obviously rather different, and statistical bases are not exactly the same, these figures do suggest that the Karabuk plant is being operated in a fairly efficient manner as far as recovery is concerned.

SEP 24 1957
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Page 2 of
Encl. No. _____
Desp. No. 118
From Ankara

In connection with the expansion plans it will be recalled that upon their completion it would be expected that additional production will call for an increase in volume of combined incoming and outgoing freight of around 94 per cent compared with 1956 figures. The situation as regards transportation was discussed in Enclosure 1 of Emdes 620, April 8, 1957 and should be considered in connection with the enclosed study. With an expected increased transport requirement of 1,788,000 tons per year and a total expenditure of TL 7 million (\$2.5 million) under Item 13 of the expansion program, this expenditure would equal \$1.40 per ton, a reasonable figure.

The obvious advantages of greater production of ingot steel and finished products undoubtedly outweigh the disadvantage of mortgaging future excess pig iron production to pay for expansion cost, however, some calculations in this respect are interesting. With \$35,800,000 of the foreign exchange requirements for expansion and \$10,450,000 of this to be met by stipulated deliveries of chrome ore and blister copper, this leaves \$25,350,000 to be covered by future deliveries of pig iron and/or iron ore. At an average value per ton of pig iron of \$62.50 this is equivalent to 4,056,000 million tons of pig iron. Since the surplus of pig iron available beyond the Karabuk plant's requirements will be only 191,500 tons per year after mid-1959, it would take something like 21 years to cover the deficit. This would make no provision for private sales of pig iron for local consumption, which would obviously not be practical. Thus it would appear that repayment in appreciable quantities of copper, chrome and iron ore will be necessary to permit a part of the surplus pig iron to be used locally and liquidation of the indebtedness over a shorter period.

Louis A. Moore
for

C. Robert Moore
Counselor of Embassy
for Economic Affairs

Enclosures: *1*

ICA report on Karabuk Iron
and Steel Works (as described
above).

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FOREIGN SERVICE DESPATCH

882.331/7-1858

FROM : Amembassy ANKARA

55

DESP. NO.

July 18, 1958

TO : THE DEPARTMENT OF STATE, WASHINGTON.

DATE (5 Enclosures)

REF : C.E.R.P. Items: C-6 (Iron & Steel) and D-VII-B3;
Embdes 620, April 8, 1957 and 118, August 28, 1957. EUR-2 AUG 1 - 1958

35 For Dept. Use Only	ACTION	DEPT.	IN F O	OTHER
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	Com-17			
	8-6			
				REP-1 IRC-8 NEA-3 E-3 ICA-10
				IN-7 TAR-2 CIA-10 ARMY-4 NAVY-2 AIR-1

SUBJECT: Transmitting Report on Karabük Iron and Steel Works.

LAB 5

Summary

Enclosures to this despatch provide information on subject facilities complementing that submitted in previous reports. They describe in detail the metallurgical processes followed and present an itemized balance of raw materials consumed, and intermediary and finished products in 1957, when operations were approximately the same scale as in previous year. Production of ingot steel last year was 175,509 tons and of rolled products, 149,531 tons. Progress on the expansion underway, to increase annual ingot capacity to 550,000 tons, is described for each individual item; according to officials in charge of the program, this is roughly on schedule and should be completed by the end of 1959.

End summary.

At the end of last March the Turkish Foreign Office, in cooperation with the management of the Karabük Iron and Steel Enterprise and of the Zonguldak coal mines, organized a visit to Karabük and Zonguldak for representatives of the O.E.E.C. countries having missions in Ankara. Minerals Attaché Thomas G. MURDOCK accompanied economic officers from the Embassies of Germany, Switzerland, Sweden, and UK, and Mr. Behiç HAZAR of the Foreign Office, on the trip.

Mr. Murdock has combined his observations, made on this visit, with other information available, into the accompanying report on Karabük. He has endeavored to limit in general this coverage to phases which are of a current interest, particularly the 1957 operations and the status of the expansion program, although some historical background is summarized and there is a technical description of the facilities and processes which, as far as the available files indicate, have not been described in detail in previous reports of the Embassy.

It is believed that the present report will meet most of the requirements on iron and steel for the Annual Mineral Report (CERP Item C-6). It will supplement and bring up-to-date the report of C. W. Ryan, former USOM/T Mining Advisor, transmitted under cover of D-118, August 28, 1957.

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It is hoped that this transmittal may be later supplemented by a study of Karabük production costs, and another one covering Turkish foreign trade in iron and steel products. These will be possible only when more data are available and particularly following the publication of 1957 import statistics.

For the Ambassador:

C. Robert Moore

C. Robert Moore
Counselor of Embassy
for Economic Affairs

Enclosures (5):

1. Report entitled "The Karabük Works of Türkiye Demir ve Çelik İşletmeleri." (In reproducible form)

Following tracings for duplication with despatch:

<u>Enclosure</u>	<u>No.</u>	<u>Title</u>	<u>TGM No.</u>
2.	MAA-20	Situation of Karabük Steel Plant and Principal Raw Materials.	23
3.	NK-36-5-NW	Location of Karabük Steel Plant - Amasra Quadrangle.	24
4.	MAA-21	1957 Materials Balance - Smelting Division, Karabük.	25
5.	MAA-22	1957 Materials Balance - Rolling Mills and Fertilizer Divisions, Karabük.	26

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The Karabük Works of Türkiye Demir ve Çelik İşletmeleri

Historical Background - It will be recalled that the Karabük original installations were built in 1939-41 by the H.A. Brassert firm of England at a cost of TL 22 million (then equivalent to US \$16.2 million). Financing was based on a £2.5 million commercial credit granted by the U.K. Later, in 1943, the German Zahn Company constructed the sulphuric acid and superphosphate plant to utilize certain by-products. The early administration was under the Sümer Bank for the steel works with Eti Bank in charge of the iron mining. The two groups of operations, however, were freed from their parent banks on June 18, 1955, and joined to form the Turkish Iron and Steel Enterprise (Türkiye Demir ve Çelik İşletmeleri). In 1950 the total investment was placed at TL 42 million (much of which was at the TL 1.3 = US \$1.00 exchange existing until 1946). No figures on investment since 1950 are presently available, however, the program of expansion now under way is expected to cost an additional TL 346 million (US \$124 million at the existing TL 2.8 per US \$1.00 exchange rate).

As previous reports of the Embassy have periodically reported annual production we will here only briefly show the growth of this in terms of annual averages for ingot steel and rolled products for five year periods, as follows:

	<u>Ingot Steel</u>	<u>Rolled Products</u>
1941-45	50,193	37,117
1945-50	93,451	71,110
1950-55	161,687	122,441
1956-57	<u>184,010</u>	<u>123,308</u>
1940-57	107,338	78,279
Total 1940-1957	1,932,084	1,409,021

Location of the Plant - The Karabük steel plant's situation is often a subject of wonder. Being 1,003 kilometers by rail from the Divriği iron mine, a principal supplier of raw materials, it is true that this lengthy haul raises a question. It must be considered, however, that at the time the plant site was originally chosen there were no known deposits of iron ore and plans were to use imported ore. The Divriği mine was discovered in 1940. It was logical to locate the plant near the coal deposits and so the situation of these in the Zonguldak area on the Black Sea Coast was a factor. As the Russians had shelled Zonguldak during World War I the plans were based on placing the plant out of reach of naval guns. As a large volume of water was a vital necessity for the plant, its situation had to be near a large river where a dependable supply was available.* The selection was thus made of Karabük, then a small village near the point where the Soganli and Avas Rivers join to form the Filyos, a stream which continues northwesterly to enter the Black Sea at the port of that name.

* - Actually the water requirements of Karabük amount to 200,000 tons per 24 hours.

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The rail distance from Zonguldak to Karabük is 126 kilometers. Although in a straight line it is only about 130 kilometers north of Ankara the rail distance is 364 kilometers.

To indicate more clearly the situation of the steel plant and the principal raw materials map MAA-20 (Enclosure 2) has been prepared. A map, NK-36-5-NW, of the Amasra Quadrangle (Enclosure 3) gives more detail as to the situation of Karabük, at a geographic position of N. 41°-12, E. 32°-37'.

Despite the unfavorable situation of Karabük an important small city has grown up there, having a population of around 20,000, of which 6,000 are workers at the plant. Some of the workers live in neighboring villages and go to and from work each day.

One of the interesting new developments has been the springing up in Karabük of a small steel consuming industry, fostered by private enterprise and consisting of small rolling mills which take unfabricated rounds or other sections from the T.D.C.I. plant and further elaborate these into a finished or semi-finished product, thus adding to their value and providing a more valuable commodity to stand the high freight rate to market.

The evolution of this small end-using industry at Karabük has been a development of the last 10 years. Today there are 21 of these small rollers who process 8,000 tons per year into small shapes and draw wire from 10 mm. rounds. Six or eight of these are reportedly effecting a merger and plan on enlarging the scope of their activities.

Plant Equipment and Processes *

The Karabük Works is a completely integrated operation producing primarily pig iron and basic open hearth steel. No Bessemer converters are employed in an intermediate process between the blast furnaces and the open hearth. Rolling mills, pipe foundries, by-product coke ovens, a fertilizer plant and necessary complementary and service installations are provided.

Coke Plant - The coke plant consists of 4 batteries of 21 ovens each. One of these is a Simon Carves and three are Didier. The plant can carbonize 840,000 tons of coal, producing 600,000 tons of coke annually. Individual ovens dimensions are: 0.45 meter wide, 4.5 meters high, and 13.2 meters long and hold 22.5 tons of coal. Coking time is 20 hours and daily output is around 1,500 tons. Coal by-products are recovered and the clean gas is combined with

* - In the preparation of this section, use has been made of a manuscript report of L. Nahai, Chief, Near East Branch, Division of Foreign Activities, U.S. Bureau of Mines, covering a field trip to Turkey in 1953, and dated March 8, 1954, bringing this up-to-date where there have been any changes.

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that from the blast furnaces and the mixture is used for firing the open hearth and rolling mill furnaces. The coke oven gas prior to mixing is stored in a 500,000 cubic foot holder.

The by-products plant normally yields daily 80 tons of tar and 18-20 tons of ammonia. The latter is used for making 12 to 14 tons of ammonium sulphate per day and a certain amount of concentrated ammonia liquor. There is a continuous tar distillation plant, producing benzol, naphthalene, toluol, certain oils, and pitch, all of which find a ready local market.

The chemical section of the plant includes a sulfuric acid plant of an annual capacity of 20,000 tons of 60° Bé. acid which utilizes sulfur from Keçiborlu and pyrite from Kure since this mine was opened up. Treating imported phosphate rock produces super-phosphate; annual output of the latter has ranged from 18,000 to 22,000 tons during recent years. A small quantity of copper sulfate is obtained by processing the pyrite residue after roasting.

Blast Furnace Plant - There are two Brassert-designed furnaces in service. "Fatma," which was blown in as part of the original installation in 1939, and "Zeynep" placed into operation in January 7, 1950. Each furnace, with 8 tuyeres, has a 15-foot hearth and 19-foot bosh diameter, is 80 feet high and has 13,741 cubic feet capacity. The third unit, the construction of which is now in course, is to have a 23-foot hearth and a height of 77 feet. The two operating furnaces have a combined capacity of 325,000 tons of pig iron, 870 tons per day, with 7 heats for each furnace. The third furnace is to turn out around 900 tons per day thus raising total daily output to around 1,800 tons.

Each of the operating furnaces has three stoves for heating the blast; these are 19 feet inside diameter, 80 feet high, and have 830,000 square feet of heating surface. They operate on a cycle of two hours on gas and one hour on blast. Average blast temperature maintained is 500° C. with the maximum being 825° C. The blast is supplied by 3 steam turbine blowers, each with a capacity of 900 cubic meters of air per minute. The blast furnace gas is stored in a holding tank of one million cubic feet capacity.

The blast furnace charge consists of 3,800 kilograms of sinter, 2,200 kilograms of iron ore, 4,000 kilograms of coke, and around 125 kilograms of manganese ore. The charge (except for the coke) is made up in a bin and charged into furnace by skips which have a cubic content for 2 tons of coke and about 4.3 tons of other stock. In practice the coke is not weighed but two skipfulls are charged followed by 2 weighed skips of metalloid charge.

Hot metal is sent to the mixer in the open hearth plant or to the pig casting machines. There are two continuous bank casting machines, one of which is a spare. Around 100,000 tons annually of pig iron is cast into 25 or 50 kilogram pigs.

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Zeynap furnace lining is currently not in good condition. The superintendent announced that every effort will be made to keep it in continuous operation, even at a reduced capacity, until the new furnace is operative.

While the 1957 production of the various kinds of pig iron made at Karabük was not available at the time of our visit, the total was 95,042 tons including 1,627 tons of ferro-manganese. Of the total, 15,324 tons were used in the open hearth and 37,391 tons of foundry pig went to the pipe plants at Karabük. Total pig iron available for sales was thus 40,700 tons, or 43.5 percent of the total output.

The Technical Assistant Manager provided us with the following analyses of different brands of pig iron made at Karabük.

Brand		C	Si	Mn	Max S	P
<u>Hematite Pig</u>	H ₁	3.5-4.5	2.25-3.00	0.60-1.20	0.05	Max. 0.2
	H ₂	3.5-4.5	1.30-2.30	0.60-1.20	0.05	Max. 0.2
<u>Foundry Pig</u>	D ₁	3.5-4.5	2.20-2.80	0.70-1.10	0.05	0.7 - 1.1
	D ₂	3.5-4.5	1.30-2.20	0.60-1.20	0.05	0.6 - 1.0
<u>Basic Pig</u>	G ₁	3.5-4.5	Max. 1.0	0.70-1.40	0.06	Max. 0.15
	G ₂	3.5-4.5	1.00-1.30	0.70-1.40	0.06	Max. 0.15
	G ₃	3.5-4.5	0.70-1.30	1.40-1.80	0.06	Max. 0.15

Sintering Plant - Two types of ore are smelted at Karabük - hematite and magnetite. The latter runs 64 percent Fe but has a high sulfur content, around 2 percent. The phosphorous content is low, 0.06 percent. The hematite runs around 62 percent Fe, with practically no sulfur and about the same phosphorous as the magnetite. To reduce the sulfur content of the hematite a sintering plant was installed and began operations in February 1953.

This plant, built by Lurgi, consists of a crushing and screening section with a daily capacity of 750 tons. Due to the need of recirculating a part of the sinter because of 30 percent fines, the limited capacity of the plant has been a limiting factor to operation of the blast furnaces at maximum output. Accordingly, the present sintering facilities are being duplicated and otherwise provision is made for increasing annual capacity from 225,000 to 775,000 tons.

Original practice has been to size the ore, crushing both hematite and magnetite separately and screening to four sizes. The 0.10 mm. fraction of both hematite and magnetite went to the sintering plant; the 10-25 mm. hematite went to the furnaces and the magnetite to rolls for further crushing and then was sintered; the 25-50 mm. fraction was treated in the same manner, and the coarser one, 50-90 mm. hematite was sent to the open hearth. In 1957 there does not seem to have been such a distinction made and both types went directly to the blast furnaces and to the sintering plant.

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The ore to be sintered is fed to a Dwight-Lloyd continuous sintering machine 2 meters wide and with 34 square meters of suction surface. The charge in 1957 consisted of 95 percent ore and sintered fines and 5 percent coke breeze.

Open Hearth Plant - From the blast furnaces the hot metal goes to a 600-ton mixer, installed in 1955. A second one is to be included as part of the expansion program. Steel has in the past been made in 4 basic open hearth furnaces of a maximum width of 3.2 meters, a melt area of 29 square meters, and depth of melt of 85 centimeters. Each furnace has had a capacity of 65 tons per heat but it has been possible to obtain 75 tons. Normally three furnaces have been operated and the fourth has been a spare. A mixture of blast furnace and coke-oven gases (250 b.t.u.) has been used for heating the furnaces and the flow of hot gases through the checkers is reversed every 15 minutes. In an early period of operation furnace roofs were made of silica brick, but later experience has indicated better results with steel-cased chrome-magnesite brick. The improved roof has a record of 800 heats without repair. The furnace bottom and walls need minor repairs after 300-400 heats. Dolomite stampings are used in the furnace bed.

The open hearth furnace charge in current practice consists of: 50 to 60 tons of hot metal, 15 tons of scrap, 3-1/2 tons of limestone, 10 tons of cold pig, and 13-20 tons of iron ore. Charges per ton of ingots produced in 1957 were (in kilograms): hot metal, 682; scrap, 222; limestone, 47; cold pig, 87; iron ore, 214; and, other additives, including dolomite for furnace patching, 53.

The expansion program calls for raising furnace capacity to 150 tons by increasing their size, and adding two new furnaces so that there will be 6 - 150 ton furnaces instead of 4 - 75 ton ones. Melting time per heat is 8-10 hours for the smaller units; it is expected that the larger ones will be on a 10-1/2 hour cycle. The flow of gases through the checkers is to be automatically reversed, and by-product tar is to be used to the extent available, and the richer coke-oven gas if tar supply is not adequate. Ingot weight, 1.5 tons under the old operation, is to be increased to 3.5 tons.

The overhead crane equipment of the open hearth consists of three 17-ton units in the charging bay; two 100-ton pit side units and one 25-ton auxiliary there; and, two 10-ton units in the scrap bay. This is the final equipment except for the pit and another for the scrap bay.

The ingots are sent to the rolling mills where after stripping they are preheated in two 25-ton per hour furnaces fired by mixed gases. These furnaces are to be replaced by soaking pits under construction as a part of the expansion program.

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Rolling Mills - The rolling mill annual capacity is rated at 180,000 tons. From the preheating furnace the ingots go to a 3-high, 28-inch mill consisting of 1 roughing (blooming) stand and 3 stands for making sections. The stands are all on one drive, however, as part of the expansion program the blooming mill will have an independent drive with a 475-hp. motor and be changed to 2-stand. The 3 "section" mills will be placed after the blooming mill and will have two individual motors, one at each end. One of these is the one now driving the 28-inch mill. The present 28-inch mill and a 16-inch one are equipped with a reversing table and products rolled are beams, channels, rails, railroad ties, shear bar, rounds and squares.

The 16-inch mill is 3-high and has 3 stands; the first one roughs for the other two 16-inch stands and to the 12-inch mill. The latter is 3-high and has 5 stands for making different small sections. Each of the 16-inch and 12-inch stands can handle 14 tons per hour.

The sheet mill is 1-stand, 30-inch, 2-high and is equipped with a reversing table and a preheating furnace is provided. It rolls sheets 1 meter wide, and of a thickness from 0.75 to 4 millimeters. The sheets go to 7 annealing furnaces, each with a capacity for 12 tons. The annealing temperature is 610° C. and annealing time 14 to 15 hours. Capacity of the sheet mill is 25,000 tons per year.

A wire drawing section takes 10 mm. rounds from the 12-inch mill and reduces these to various sizes between 8 and 2 mm. Based on 1957 output the annual capacity of this unit is around 1,350 tons.

Pipe Foundry - This unit includes facilities for making both vertical centrifugal cast and horizontal centrifugal cast pipe of diameters from 75 to 600 mm. and from 60 to 200 mm., respectively. Melting in the vertical casting shop is done in 4 cupolas, two of which have a capacity for 7 to 8 tons of melt per hours. There are 3 vertical casting machines. The horizontal casting shop is served by 2 cupolas of a capacity of 6 tons per hour each. Five horizontal centrifugal casting machines are in service there and plans are to add two more. With the addition of these units, two 12-ton cupolas and a new annealing furnace, total pipe output is expected to increase to 36,000 tons against one of 27,000 in 1957. Mixed gas is used in the foundry and 145 men are employed in 2 shift operations. The horizontal casting shop is equipped with pipe conveyors which move the pipe in a continuous cycle through subsequent operations of cropping the ends, swaging and grinding the bells, annealing in one of two furnaces for 1-3/4 hours, testing with hydraulic pressure at 30 atmospheres, drying at 200-250° C. in another furnace, and finally dipping in tar.

Power House - In addition to the blast furnace blowers the power house installation contains two 12,500 Kva. turbine driven generators (direct drive). The turbines are Fraser-Chalmers manufacture and drive General Electric A.C.

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generators, generating 3,300 volt, 2,136 ampere, 50 cycle current; they are of 3,000 r.p.m. The power house auxiliaries are supplied from two 3300/380 v., 3-phase transformers, each of 1,000 Kva. capacity. Another similar one, except of 500 Kva. capacity, serves the blast furnace and other local requirements adjacent to the power house. There are also two D.C. 750 Kv. generators driven by synchronous motors.

The power needed above that supplied by the Karabük power plant is supplied by the Çatalagzi thermal station near Zonguldak, whose capacity was raised to 120,000 Kv. last year. Transmission line voltage is 64,000 volts and there is a step-down transforming station at Karabük.

Steam for the Karabük turbines is supplied by four International Combustion water tube boilers, one of which is a spare. Each boiler raises 25 tons of steam per hour at a pressure of 375 lbs. per sq. in. and temperature of 725° F. The boilers can be fired with blast furnace or coke oven gas, or powdered coal. In 1957 the plant consumed 9,239 tons of coal.

Electric Furnace - In the steel foundry, adjacent to the open hearth, there is a 3-ton Birleg-Lectromelt electric furnace for making alloy steels. Annual output is around 500 tons of high carbon (1.1 percent) steel, 1 percent chrome and 12 percent manganese alloy steels.

1957 Operations - A 1957 Materials Balance for the operation to the ingot stage is attached. See Enclosure 4 (MAA-21). One for the rolling mill and super-phosphate plant is shown in Enclosure 5 (MAA-22). A study of these will also indicate the flow of materials, intermediate and finished products. The comparable data for 1956 are narrated in somewhat less detail, in the Enclosure to Emdes 118, August 28, 1957. It will be found that in most cases balancing input against output for an individual unit there is some difference; this is due to the fact that materials in process and local stock are not considered.

Despite what is apparently an efficient operation, the 1957 activity at Karabük resulted in an ingot output 9 percent below that of the previous year. Total pig iron production, however, was only 2 percent below that of 1956. This difference may be accounted for by the fact that during a part of the year one of the open hearth furnaces was out of service for conversion to the larger capacity.

Coke production established a record high; including fines, it was 5.5 percent above the 1956 figure. There are indications of a more efficient coking operation in the reduction of percentage of breeze (fines) from 3 percent of the total to 2.8 percent; recovery of coke per ton of coal carbonized apparently rose from 749 to 777 kilograms.* Coke consumption by the blast furnaces rose 2 percent with the result that consumption per ton of pig iron increased from 968 to 1,010 kilograms. This was probably due to a slightly different nature of iron-bearing

* - In 1955 U.S. average was 748 kilograms of which 6.2 percent was breeze.

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stock charged, as will be mentioned later, and as is suggested by the fact that coke comprised 34 percent of total burden in 1957 against 33 percent in 1956. Coke consumption by the sintering and pipe plants was approximately 900 tons higher than in 1956, explainable by the slightly increased output of these units. Despite the increased coke consumption that available for sales and miscellaneous uses rose by 8 percent. Although Karabük records show moisture content of coal coked at 3 percent, other sources indicate this at 7 percent.

Exclusive of a small amount of manganese ore in both years, the total stock of metallics used decreased from 351,060 to 325,112 tons, a 7.4 percent decrease. This meant a reduction in their average consumption per ton of pig iron produced, from 1,600 to 1,513 kilograms. Limestone consumption on this same basis, however, rose radically, from 357 to 455 kilograms per ton and 26 percent in actual tonnage charged. The impurities in the additional coke used and a different burden, as far as iron content goes, would account for a part of this. The main increase, however, would seem to be explainable by the fact that 2,571 tons of tri-calcium phosphate rock was charged into the blast furnaces for making foundry pig. There is no record that high phosphorus foundry pig was made in 1956. The fluxing off of the excess phosphorus would thus account for the high limestone consumption. Average P content of pig iron made in 1956 was reported at 0.15 percent. The 1957 average is not available but analyses indicate that D1 foundry pig runs as high as 0.7 - 1.10 percent.

As regards the metallic blast furnace burden, there were several changes in proportions of different ores used. Although work on the sintering plant extension in the latter part of the year slowed down normal functioning, the output of sinter rose by 1 percent. More significant, however, was the increase in the proportion of total ferruginous burden, from 58.1 to 63.2 percent. Consumption of coke breeze per ton of sinter produced rose slightly from 60 to 62 kilograms. The recovery of sinter per ton of ore roasted in 1957 was 922 kilograms; that of 1956 is not shown. The quantity of unsintered ore charged to the blast furnaces was 119,351 tons in 1957 (120,223 tons in 1956). It is interesting to note that the proportion of this supplied by private producers decreased from 22 percent to 14 percent, and in actual tonnage by 38 percent. Thus there was an increase in the ability of Divriği mines to supply Karabük's requirements. While information on average grade of ore smelted is not available there is an indication that it was higher than in 1956 assuming that furnace efficiency was the same.

Of the total pig iron output in 1957, one of 214,873 tons, the hot metal for the open hearth comprised 56 percent; in 1956 this figure was 57 percent. Thus for an over-all net decrease of 2 percent in pig iron production, that of the hot metal was 5 percent and the solid pig actually was 2 percent greater. In view of the local demand for pig iron it was undoubtedly planned to produce as much as possible above the internal plant requirements. It is noted that despite the fact that pig iron exports to Germany were scheduled to be made as one of the major means of financing the plant expansion program, no progress was

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made in such deliveries in 1957. Although in that period there were exports of 2,100 tons of foundry pig and 6,100 tons of steel pig, having a total value of TL 1,272,800, these were all to the United States.

In 1957 the open hearth steel plant received 119,381 tons of hot metal from the blast furnaces (126,016 tons in 1956). The remaining input of metallics amounted to 93,751 tons, as broken down in the attached flow-sheet. The comparable figure for 1956 was 109,766 tons or 17 percent greater. Thus the hot metal comprised 56 percent of total metallic charge in 1957, against 53 percent in 1956. Ingot output was 192,512 tons in 1956 and 175,509 tons in 1957, including, respectively, 45 and 613 tons of steel castings. Charge of hot metal per ton of ingot produced was 682 kilograms; that of other metallics was 534 kilograms. Comparable figures in 1956 were, respectively, 655 and 570 kilograms. The totals, however, were very close together, 1,216 in 1957 and 1,225 in 1956. The total iron recovery in 1957 must therefore have been quite close to the 1956 figure, reported at 91.6 percent.

The rolling mills received 139,708 tons of ingots, the 9 percent above production coming from stock. In 1956 receipts were 186,440 tons or 4 percent less than ingot production. Thus despite a 9 percent drop in ingot production, the rolling mills handled a 2 percent greater tonnage of ingots, thus indicating quantitatively a greater over-all capacity. Output of rolled products totalled 149,531 tons, a figure which was only 78.8 percent of input, compared with a 1956 output of 154,112 tons and 82.5 percent of input. Some products in process may have shown a gain in stock, or some scrap material may have been included in rolled products in 1956 as there is no indication of any sales of such scrap in that year while in 1957 such material destined for sales amounted to 24,584 tons. A roughly equivalent tonnage of scrap, scale, croppings, and the like, actually 24,736 tons, was reprocessed, all except 100 tons in the open hearth. This circulating scrap was shown as 32,328 tons for 1956. Total scrap plus rolled products in 1957 was 198,901 tons, the excess over rolling mills input coming from rolling mill stocks. Rolled products and scrap for sale amounted to 174,115 tons and sales of these came to a rounded out figure of 140,000 tons.

The pipe foundries received 37,391 tons of foundry iron (35,564 tons in 1956) and 11,681 tons of scrap pipe returned to the cupolas. In addition 3,226 tons of limestone and 9,210 tons of coke were used in the foundry; these figures were 3,053 and 11,131 tons, respectively, the previous year. Output of pipe was 26,993 (14,098 centrifugal cast and 12,895 sand cast), compared with 26,607 tons (14,212 and 12,395, respectively) in 1956. In 1956 there were produced 5,556 tons of fittings and machine parts; the 1957 figure is not indicated.

Figures on the recovery of by-products are not shown on the Materials Balance. Complete data are not yet obtainable, however, figures for some follow: pitch output was 12,172 tons (15,922 in 1956); ammonium sulphate production was 4,886 tons (4,151 in 1956) and, that of naphthalene was 667 tons (522 tons).

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Acid plant activities were at a higher rate than in 1956. Sulfur ore used was 8,534 tons (against 7,960) and pyrite consumption, 4,313 tons (1,358 tons). Output of 60° Baumé sulfuric acid came to 20,322 tons (against 16,670 tons); the 66° Baumé product was 5,677 tons (5,032 in 1956). Phosphate rock used in the superphosphate plant was 7,556 tons (6,059 tons in 1956), and output of superphosphate was 12,037 tons (10,189 the previous year). Treatment of 3,500 tons of the pyrite residue gave 149 tons of copper sulfate; this figure for 1956 was not reported.

It thus appears that the 1957 operations were on the whole on approximately the same scale as in 1956, with normal fluctuations in consumption of raw materials and production of intermediate and marketable products.

Employment and Productivity:- Time available did not permit obtaining complete data on this phase of the operations at Karabük. Some more salient figures on employment were obtained for individual sections of the plant and a few rough calculations may be made. While a comparison of these with similar figures for the extensive industry in the United States introduces some factors which are not comparable, it does give some idea as to the efficiency at the local plant and the latter does not suffer badly from such a comparison.

Total employment was placed at 6,000 workmen. This includes those presently engaged in the expansion program, in the fertilizer and pipe plants, and in providing maintenance and service facilities for the operation because of fact that the plant, because of its situation, is a self-sufficient installation and commercial facilities available in more industrialized areas are not available at Karabük. Thus on the basis of **this** total labor force and the 1957 production the annual ingot output per worker was only 29 metric tons. A survey of the U.S. industry for 1956, covering 86.6 percent of the iron and steel industry showed employment of 604,075 workers and ingot output of 107.7 million net tons of ingots and steel for castings. This works out at 162 metric tons per worker year.

Adding up the workers in the Karabük principal operations: Coke plant (200), blast furnaces and sintering plant (200), and open hearth (312), we have only 750 men actually engaged in these principal operations to the ingot stage. Raising this figure to 1,000 to allow for other workmen actually involved in direct steel production to the ingot stage and the output per man-year would work out at 176 metric tons, a figure quite close to the U.S. average. The figure on U.S. employment admittedly includes some labor involved in rolling mills, so the U.S. average figure for actual labor to the ingot state could be higher. Correcting for the fact that 55 percent of the Karabük coke production was sold and not all of the pig iron went into steel making, the output per man-year there would go up. Based on this fragmentary data there is a suggestion that the productivity at Karabük might be rather close to the U.S. average if exactly comparable data were available. The rolling mills at Karabük employ an additional 750 workmen and in 1957 the average input to the rolling mills was 253 tons per worker.

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The 1957 coke output per man-year at Karabük was 2,736 metric tons; the average for by-product coke ovens in the U.S. in 1955 was 3,407.

The completion of the expansion program will create a need for additional operating labor, however, it was expected that this would not be much above that presently engaged in production on a basis of unit output and the workmen now on the expansion program could fill the need so that total labor force should be about what it now is.

Progress on Expansion Program - According to the Karabük officials, satisfactory progress is being made on the program for the expansion of production, an integrated operation which means an increase in annual ingot capacity from 180,000 to 550,000 tons with consequential parallel increase in intermediate products output and in finished steel. While in some items individual jobs are slightly behind schedule, others are definitely well ahead. The officials believed that everything should be completed by the end of 1959 and full capacity obtainable shortly thereafter.

The status of individual projects as listed in the enclosure to Endes 118, August 28, 1957 follows: *

1. Sinter Plant Extension - (from 200-225,000 tons to 775,000 tons per year). Equipment is now coming in and work of installation and renovation is underway. Scheduled completion date December 1958 will be extended slightly to early 1959.

2. Open Hearth Extension - Phase I (from 180,000 tons to 400,000 tons per year). In June 1958 one new and one rebuilt (enlarged) furnace will be in operation. This will give a theoretical annual capacity of 270,000 tons for the last half of 1958 and by the end of the year subsequent addition to capacity should provide still additional output.

3. Open Hearth Extension - Phase II (from 400,000 to 600,000 tons per year). Progress on the first phase indicates that this job will be finished by the time additional blast furnace capacity provides needed hot metal. As a part of the increase is to be through reduction in length of heat, and other improved techniques, it was expected that these facilities would be functioning at full capacity by the end of 1959.

4. Blooming and Section Mills - (from 180,000 to 600,000 tons per year). This includes the installation of soaking pits. Two batteries of 4 pits each have been completed; the first of these was given a test firing last July and the second one is now ready for testing. The placing of other equipment is progressing. The blooming mill will be operative well before the December 1958 date scheduled and an effort is being made to have at least the first stand of the section mill in service by then.

* - D-118 outlined financial requirements for each project, contractors when a contract had been placed, and method of payment. According to Karabük officials, financing of remaining projects has been arranged.

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5. Bar, Rod and Skelp Mill - (from 180,000 to 230,000 tons per year). Installation will be ready by December 1959. The work on foundations has started and equipment is on order but is not in yet.

6. New Gray Iron and Steel Foundry - These new installations are reportedly still under planning and have not yet been started. Locally fabricated equipment will be used for the most part. The originally planned capacity of 10,000 tons capacity for the steel foundry has been lowered to 6,000. That of 20,000 tons of gray iron still stands. According to Karabük officials financing of this project is now assured, however, it will probably not be ready by the December 1958 scheduled date of completion.

7. Structural Steel Fabrication Shop - Actual capacity of fabricated structural products output is around 5,000 tons per year. This work is presently being carried out temporarily in the rolling mill extension building and here and there throughout the plant. Plans are to bring these activities together in a single new structure to have a capacity of 5,000 tons and later raise this as needed. Drawings are being prepared for this job and it will probably be ready by December 1958 rather than June 1958 as scheduled. No details as to financing were available but the Karabük officials reported this was taken care of.

8. Fifth Battery of Coke Oven - (from 600,000 to 900,000 tons per year). Quotations are currently under study; financing is reportedly assured. The placing of orders and scheduling of date of termination is to be such that this unit will be in service in time to supply coke for the third blast furnace once this is operative. Equipment for reducing moisture content of coal coked from 7 to 3 percent is being installed at Zonguldak. Reduction of ash content from 14 to 11 percent is under consideration.

9. Third Blast Furnace - (from 300-325,000 to 600-675 tons per year).. The contract for this facility was placed in accordance with the original agreement, in mid-January. Work on excavation for foundations was scheduled to begin in April. It was expected that the June 1959 date could be met.

10. Conversion 28" Blooming Mill to Billet and Plate Mill - (capacity 350,000 tons per year). It was expected that work on this **project** would be partly finished by December 1958 and the entire job completed six months later. Financing was reportedly arranged.

11. Extend Soaking Pits and Stripping Bay - (from 400,000 to 600,000 tons per year). The installation of the soaking pits as part of this item is apparently being combined ~~with~~ that of the first two batteries in Item 4. Actually the third battery raising total number of pits to 12 is completed but control devices for this battery have not yet been received. It is expected that the entire item will be completed by mid-1959.

12. Miscellaneous Auxiliary Equipment for Blast Furnace and Steel Mill - All of this equipment has been ordered from Krupp and some items have already been shipped. It was expected that the items needed by the end of 1958 will be in service by then with the others ready as needed.

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13. Miscellaneous Equipment for 600,000 Ton-Capacity - This project, particularly the provision of additional power needed is under active study. With the enlargement of the Catalagzi thermal station near Zonguldak immediate future needs can be met, however, for the final program additional generative capacity at Karabük might be needed and an effort will be made to obtain this by the end of 1959 if investigations indicate its necessity.

14, 15. Divrigi Iron Mine Extension - The Karabük officials had no information on progress at the iron ore mines but believed the operations would be able to meet their share of the increased demand. It is expected, however, that private producers of ore will be called upon to supply 50,000 tons per year once the new facilities are operative, a three-fold increase over the quantity supplied in 1957.

Although the enclosure to D-118 did not mention it, there are plans also for the expansion of the pipe foundry. These are still at the study stage and would raise annual capacity from 18,000 to 26-30,000 tons for the horizontal centrifugal-cast product. It was planned to leave the vertical shop capacity at the present one of 12,000 tons.

OTHER CONSIDERATIONS

Officials - The technical direction of the Karabük Work appears to be highly capable of meeting their responsibilities. The General Manager is Ali ÇİMEN; Technical Assistant Manager is Kemal ETKER; Open Hearth Superintendent is Mümtaz AİMAN; Rolling Mill Superintendent is Nezihi BİLEN. The Chief of the Extension Department is Fahrettin ERGURENÇİ and his assistant is Nuh ERGENİEMAN. T.D.C.I.'s Ankara Representative, who accompanied the visitor's party, is Hamdi TOKER..

All of these operating officials were educated in the United States or Western Europe and it was encouraging to note their dedication to their work and pride in achievement.

Production Costs - No official data on production costs are presently obtainable and the complex nature of the operations makes any calculations extremely difficult and hazardous. The reporting officer prefers to undertake a careful analysis of the operations and probable costs at some future date when additional data are available. A very rough calculation making several arbitrary assumptions, indicates that theoretically and statistically the direct production cost per ton of ingots should be around TL 168 (US \$60 at TL 2.80 per US \$). This is quite close to that of larger steel plants in the U.S. using hot metal charges which showed an average cost of US \$69.44 per metric ton of ingots in 1956.

Turkish Self-Sufficiency - While the final figures on imports of iron and steel products (unfabricated) for 1957 are not yet available preliminary one placed the total at 88,211 tons; in 1956 they were 145,783 metric tons. The

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1957 sales of domestic rolled steel plus those of pig iron, and production of pipe, amounted to 207,693 tons; the total availability was thus around 300,000 tons, so the national production amounted to 69 percent. Once the 1957 final figures are obtained a detailed study of this subject will be attempted.

The growing demand for iron and steel products is certainly such that there should be no difficulties in marketing the increased output. Recent figures on imports mean little in terms of demand as shortage of foreign exchange has greatly limited these to the more essential demands and they are based in part on the arrangement under which iron ore and scrap have been exported for conversion to a semi-finished product and subsequent importation of the latter.

The fact that most of the pig iron production for future years has virtually been mortgaged against the equipment for the Karabük extension means that this product will remain in short supply even after the plant capacity is increased to produce 600,000 to 675,000 tons of pig per year.

Iron and Steel Prices - As part of the measures taken in early June to stabilize the Turkish economy, the sales prices for Karabük production have been raised, along with prices in other sectors. The new rise, reported as the fourth in 8 years, increases the prices of iron and steel from 80 to 110 percent. Bars, 12 mm. diameter, increased from TL 650 to TL 1,200; Sections, 12 x 22 mm., from TL 660 to TL 1,220; Sheets, 2 mm., rose from TL 750 to TL 1,385; and crude steel from TL 276 to TL 590.

These increases will not necessarily be reflected in a greater profit to Karabük, as the raw materials will feel the impact of the general price rise. Coal prices to industry have been increased by 250-300 percent.

Export of Scrap Iron Prohibited - Availability of scrap iron to Karabük has at times been a problem and has been a factor in determining the open hearth charge. To meet the requirements and build up a reserve for the expanded activities at Karabük, exports of scrap have now been prohibited by Decree of the Ministry of Industry, made effective last April. The scrap dealers have expressed considerable dissatisfaction with this and claim that the TL 160 per ton paid at Karabük does not cover transportation. They are calling for increased prices and an arrangement which would call for a classification of scrap so that material not suitable for use here could be exported.

In the first 9 months of 1957 exports of scrap amounted to 3,430 tons valued at TL 1,327,826. As this volume is 32 percent above the purchased scrap used at Karabük last year it is evident that there was some justification for this embargo.

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Conclusions

1. The Karabük plant, despite an unfavorable geographic situation as regards some of the raw materials and markets for finished products, is a real economic asset to the country.
2. On the whole the operation is an efficient one, from the standpoints of technical management, equipment and its utilization, metallurgical processes, and labor efficiency.
3. Satisfactory progress is being made on the expansion program and barring any unforeseen circumstances the new facilities should be in operation by the end of 1959.
4. A detailed examination of the 1957 materials balance indicates that operations were on approximately the same scale as in 1956, with a normal fluctuation in the consumption of some individual raw materials.
5. Turkish consumption of iron and steel products, apparently around 11 kilograms per capita in 1957, compared with around 623 kilograms in the United States, may be expected to grow appreciably with the availability of more domestic production and exchange for imports.
6. With the completion of the present expansion program at Karabük no further expansion there appears warranted. Any additional facilities should be situated elsewhere, and consideration should be given to a utilization of improved techniques in any new developments. For example improved furnace designs are apparently successful for pig iron making, and the use of the oxygen-converter, the Linz-Donawitz process, for steel making. The latter was considered for the Karabük expansion, but rejected for what at the time seemed to be good reasons.

Thomas G. Murdock
Thomas G. Murdock
Minerals Attaché

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FOREIGN SERVICE DESPATCH

882.331/8-1558

FROM : Ambassador ANKARA

TO : THE DEPARTMENT OF STATE, WASHINGTON.

REF : CERP Item D-IV-A-2

134
DESPATCH NO.

August 15, 1958

AUG 15 1958

22 For Dept. Use Only	ACTION	DEPT.
	REC'D	OTHER
	Com-17	REP-1 IRC-8 E-7 ICA-10 NEA-4 EUR-5
	8-21	CIA-10 IN-7 TAR-2 Army-4 Navy-3 Air-1

SUBJECT: Revised Iron Allocation in Turkey.

There is enclosed a summary of a new communique released by the appropriate government office on August 12, 1958, revising the terms of rationing of available iron supplies in Turkey. There is of course no way of knowing the extent to which the terms of the order will be effective, but a study of its terms reveals that its intent is apparently to place heaviest restrictions on construction whose completion is least desirable in the current period of foreign exchange shortage, and to discourage new construction.

The system appears to be artificial, but to the extent it is effective in practice, should have a desirable effect in conserving foreign exchange, as well as in diverting stocks to the more practical of projects in being or pending.

For the Ambassador:

R. Bernard Crowl

R. Bernard Crowl
First Secretary of Embassy

Enclosure:

Summary of Communique, New Principles on
Distribution of Iron in Turkey, issued
August 12, 1958. (Translation)

Copies to: Istanbul, Iskenderun, Izmir, Paris/USRO (2).

W. Moore Jr.:wav
REPORTER

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882.331/8-1558

DHS

T R A N S L A T I O N

**New Principles on Distribution of Iron
(* See Note 1)**

The Communiqué issued by the Office of Allocation and Distribution will be effective as of August 12, 1958.

Communiqué No. 1, attached to the Circular No. 1, issued under Decree No. K/1146, on distribution of iron is shown below:

Art. 1: The following principles will be taken into consideration in distribution of iron:

a) Each application will be classified and evaluated as shown below:

- 1) Public installations (hospitals, schools, roads, and bridges); 80 points.
- 2) Installations concerning economic activities which will result in increasing exports and decreasing imports (factories, workshops, etc.); 70 points.
- 3) Installations concerning economic activities which will result in increasing the amount of commodities required for local markets; 60 points.
- 4) Residences; 50 points.
- 5) Buildings for income (apartment buildings, hotels, theaters, etc.); 40 points.
- 6) Social installations (parks, exhibition buildings, sport installations, etc.); 30 points.

b) Buildings presently under construction will also be classified and evaluated as shown below:

- 1) Buildings of which construction has just started; 10 points.
- 2) 25 percent completed; 25 points.
- 3) 50 percent completed; 50 points.
- 4) 75 percent completed; 75 points.

c) Distribution will be made by giving higher priority to these applicants with higher points.

Art. 2: Allocations made prior to the publication of this Communiqué will be considered valid, upon approval by municipalities.

* ~~Note~~ 1: New principles apply to all iron stocks within Turkey, and to all iron to be produced locally or to be imported.

Page 2 of 2
Encl. No. 1
Desp. No. 114
From Ankara

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Page 2 of 2
Desp. No. 114
From Ankara

Art. 3: Distribution to industries under private sector will be made through the "Private Sector Distribution Office."

Art. 4: Iron requirements of state sector will be made directly through the Office of Allocation and Distribution.

Art. 5: Iron requirements of tradesmen will be made through the Turkish Tradesmen Confederation.

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e1d DEPARTMENT OF STATE INSTRUCTION

265

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FOR DC USE ONLY

NO.: CA-10535, June 3, 1959,

SUBJECT: Seidelhuber Steel Mill

TO: American Embassy Ankara
American Consulate General, Istanbul

FROM COMMERCE

The following article from the Seattle Times of May 23 was forwarded by Commerce's Seattle Office to supplement information on the subject mill furnished the Embassy last year:

STEEL MILL TO BE SHIPPED TO TURKEY

Workmen today were dismantling the steel mill of the defunct Seidelhuber Steel Rolling Mills Corp., 5280 West Marginal Way, for shipment to Turkey.

Nicholas J. Constantine, Chicago attorney, said the electric furnace and rolling-mill machinery, now held by the Howard International Co. of New York, will be shipped to Istanbul in August. The ultimate owners and operators of the plant will be the Agricultural Bank of Turkey and Alka Ahmet Oguz Akal, a Turkish corporation, Constantine said.

The Seidelhuber steel operation developed from the Seidelhuber Iron and Bronze Works, a family-owned operation begun in 1906. The furnace-and-rolling-mill operation was financed largely by a \$1,500,000 stock issue and a \$750,000 loan from the Reconstruction Finance Corp. The company obtained additional financing but failed in 1953 soon after beginning its rolling-mill operations.

Lengthy bankruptcy and reorganization proceedings followed and were concluded only last year.

Sidney Lowry, New York, representing the Howard company, also is in Seattle to oversee the dismantling job and arrange for shipment of the machinery.

DILLON (ACTING)

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(Security Classification)

DRAFTED BY: Robert D. Sethian, Acting Director
Near Eastern and African Division
AHG:land:ns Commerce June 1, 1959

APPROVED BY: DOL
OSS:DC/L:PSCooney:agh

6/3/59

ASSISTANT CHIEF FOR LIAISON

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INCOMING TELEGRAM**Department of State****ACTION COPY**

54-H

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Action

Control: 7421

Rec'd: November 12, 1959
5:23 P.M.

NEA FROM: Ankara

Info

SS TO: Secretary of State

L NO: 1146, November 12, 5 P.M.

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JOINT EMBASSY/USOM MESSAGE.

Re Koppers Steel Mill proposal Messrs. Denig Koppers, Furgeson Westinghouse and Guerney and Simmons Blaw-Knox have been in Ankara several days discuss proposal GOT. We advised on confidential basis by Koppers that on November 11 letter of intent signed by Ataman, Minister of Coordination to proceed with proposal. Letter intent valid to June 1, 1960. Representatives report they intend depart Ankara November 13 for discussions in U.S. and that Presidents three companies expected arrive Ankara November 23 for official ceremonies.

Further advised that Blaw-Knox Washington representative telephoned and requested approach EX-IM and DLF today. Company representatives concerned lest information re letter intent be released which would immediately be followed by German and/or other American interest. FYI Simmons confidentially advised they have reason to believe Kaiser interested. End FYI.

Comment: Mission but recently received copy Koppers report. Currently engaged analysis in the anticipation need for comments and recommendations.

WARREN.

AAL:DL-2

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151

DESP. NO.

December 15, 1959

DAI

FROM : Amcongen, ISTANBUL

TO : THE DEPARTMENT OF STATE, WASHINGTON.

REF : CERP, Section D, Part VII-B-3

$c'/mc = 3$

RM/R

64 ✓ For Dept. Use Only	ACTION Rec'd 4 12/21	DEPT IN FO OTHER Com - 7	Rep. 1 IRB 8 ICA-11 E. of E. 10. 5 IN-7 CIA-10 TAK 2 Army - 4
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SUBJECT: Memorandum of Conversation with Lucien Szyffer Concerning Flat Glass Plant and Steel Mill. *CSO-4*
May-2 CW-1 TR-3

- 1/ There is attached a memorandum of conversation between the reporting officer and Mr. Lucien SZYFFER who claims to represent, among others, the
2/ New York import-export firm of Smith, Kirkpatrick & Co., Inc. There is also attached a copy of a letter to this effect which Szyffer presented to the Consular Section of the Consulate General. It is the reporting officer's considered opinion that any of the information given by Szyffer should be taken with a grain of salt but that a thorough analysis should nevertheless be made to ascertain any "angle" that Szyffer may be "working" in this matter. The Consulate General seriously doubts that the Turkish economy could support a second flat glass plant as claimed by Szyffer. However, it does not have available any statistics or data to support this view.

The Consulate General does not know the status of any funds which may have been earmarked for the Transturk-EBASCO flat glass project. In line with this the Consulate General would appreciate being advised of the latest status of DLF loans to Turkey. It would be appreciated if this information would cover those projects approved, those pending approval, those projects that have been rejected outright and those projects on which no action has been taken.

FOR THE CONSUL GENERAL:

William R. Beckett
American Consul

cc: AmEmbassy, Ankara
GTI, Washington
DCM, Ankara

Enclosures:

- 1/ Memorandum of Conversation dated December 9, 1959
2/ Copy of letter from Smith, Kirkpatrick & Co., Inc., dated November 27, 1959

DHCohn/yj

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AMERICAN CONSULATE GENERAL,
Istanbul, Turkey,
December 9, 1959.

MEMORANDUM OF CONVERSATION

PARTICIPANTS: Lucien SZYFFER, Associate of Smith, Kirkpatrick & Co., Inc.,
47 Beaver Street, New York 4, New York, and David H. COHN,
American Consul, Istanbul, Turkey.

PLACE: American Consulate General, Istanbul, Turkey.

DATE: December 9, 1959.

Mr. SZYFFER called at his own request to discuss the status of his various activities in Turkey. Mr. Szyffer had claimed at previous meetings that he represented, in various degrees, Smith, Kirkpatrick & Co., Inc., Koppers Co., EBASCO Services and United States Steel Corporation. He claims that his primary interest at this time is in the establishment of a steel mill utilizing a patented Koppers process which using electricity to reduce iron ore and other minerals directly to steel ingots.

Szyffer claimed that Mr. Fred Denig, the President of the Koppers Company, (Szyffer is an inveterate name dropper) was "astonished" at the Turkish Government's announcement concerning the results of Koppers' survey concerning the establishment of a second iron and steel production facility in Turkey. According to Szyffer the protocol signed by Koppers, Blaw-Knox and Westinghouse Electric International in late November for a new steel mill had very little relation to the final report prepared by Koppers.

Szyffer shifted the topic of conversation to the once planned Transturk-EBASCO Services Chemical Construction Company flat glass and soda ash project. Szyffer maintains that the Soviet glass project was accepted because of the influence of the Ig Bank in the Turkish Government, however he says he has hopes that in some fashion something may be salvaged from the original project, with which he claims to be involved through his association with Smith, Kirkpatrick. Szyffer then got to the point of his visit. He claimed that Fuat Suren of Transturk had ascertained that the 9 million dollars applied for by the above Transturk-EBASCO Services group for the glass-soda ash project had not been re-allocated by DLF. Therefore Suren had approached the French glass manufacturing concern of Saint Gobain (it is Szyffer's contention that Saint Gobain is closely linked to Pittsburgh Glass through an exchange of patents and board of directors memberships) with an offer to have a new application submitted to DLF for the establishment of a second glass plant. Szyffer claimed that Suren had approached him offering membership on the board of a new firm to be formed, plus a payment of 100,000 dollars if Szyffer would go along with the procedures worked out with Suren's lawyers to "get out from under the solemn legal and moral obligations" of the contracts between the Transturk on one hand and the EBASCO Services and Smith, Kirkpatrick & Co., Inc., and Chemical Construction Co. on the other. He also insisted that Turkey could utilize the production of two flat glass plants of the size planned.

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Page 2 ofEncl. No. 1Desp. No. 151From Istanbul

In view of Szyffer's reputation the reporting officer must indicate at this point that he was amused, to put it mildly, at Szyffer's posture of righteousness. Szyffer insisted that such double dealing was not at all to his liking and that he was telling the American Consulate General this information in hopes that it would be transmitted to the proper Washington authorities.

The reporting officer thanked Mr. Szyffer for the information and added that he saw little that could be done in this matter, but that the information would probably be transmitted to Washington. Szyffer has subsequently called the reporting officer to re-emphasize the confidentiality of the information concerning Suren's alleged duplicity.

cc: AmEmbassy, Ankara
GTI, Washington
DCM, Ankara

DHCohn/yj

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Page 1 of 1

Encl. No. 2

Desp. No. 151

From Istanbul

SMITH, KIRKPATRICK & CO., INC.,
International Organization for
Export and Import Trade and Finance
47 Beaver Street - New York 4, N.Y.

November 27, 1959

TO WHOM IT MAY CONCERN:

The Bearer of this letter, Mr. Lucien Szyffer, is associated with our Company in the development of a project to establish in Turkey a new mill to produce steel bars for use in reinforcing concrete and also steel wire rods.

Investment will be required by Turkish interests to cover the cost of land, buildings, all supplies and equipment which can be purchased locally, and for a suitable amount of working capital for the new company which will own and operate the mill. For machinery and equipment to be supplied from the United States, it is planned to file an application with the U.S. Development Loan Fund in Washington, D.C. to cover a substantial portion of the dollar costs, including the cost of a technical and economic survey of the project to be made by a qualified U. S. company.

In accordance with extensive discussions with the U. S. Steel Corporation, it is expected that the survey will be undertaken by that organization.

Very truly yours,

SMITH, KIRKPATRICK & CO., INC.

(Signed) Robert L. Clarkson, Jr.

Robert L. Clarkson, Jr.
President

RLC:RC

Over 80 Years in Foreign Trade

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